



**New York State
Parks, Recreation and
Historic Preservation**

Agency 1290000

PROJECT MANUAL

TA-JJ-2023-001
JOHN JAY HOMESTEAD: SITE AND BUILDING ENHANCEMENTS
JOHN JAY HOMESTEAD STATE HISTORIC SITE

BID PROPOSALS FOR THE FOLLOWING CONTRACT(S):

D006292 GENERAL CONTRACT

VOLUME 1 of 6

Are Due via email at:

12:30 PM

on

October 8, 2024

Bid proposals will be opened exclusively via Webex at:

1:00 PM

on

October 8, 2024

Webex Link at attend:

<https://meetny.webex.com/meetny/j.php?MTID=m40b9689c6ed92a60ec352816a046e233>

Contact Persons:

Senior Architect

Amanda Tucker / 518.807.1884

Architectural Conservator

Erin Maroney / 518.268.2173

Capital Facility Manager

Garrett Jobson / 845.889.3840

Contract Administrator

Tammy Murray / 518.474.3831

Contract Administrator

Magen Bauer / 518.474.3258

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Notice to Bidders

NOTICE TO BIDDERS

Sealed bids for the **Building & Site Enhancement Project at John Jay Homestead State Historic Site** at, 400 Jay Street, Katonah, Westchester County, New York will be received by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP), via email at Hudson.CapitalProcurement@parks.ny.gov. Electronically submitted bids must only be attached in PDF format– hyperlinks will not be accepted. Note: There is a 20MB limit when submitting attachments via email. If email is not an option for the bidder an alternate address will be provided upon written request to a designated contact. Deadline for bid submission is **12:30 PM local time, October 8, 2024**. Sealed bids will be publicly opened and read via **WebEx only** at 1:00 PM local time, October 8, 2024. The Contract D number should be clearly marked in the subject line of your email, along with the words “BID SUBMISSION”. Each bid must be prepared and submitted in accordance with the Instructions to Bidders and must be accompanied by a scanned **Bid Security** in the form of a certified check, bank check, or bid bond in the amount of: **\$1,100,766.55**

Note: The original hardcopy bid bonds for the two lowest bidders must be postmarked and sent via certified mail within 48 hours of receiving the bid summary from the Office.

General Construction Contract	D006292	\$1,100,766.55	One Million, One Hundred
Project Labor Agreement (PLA)			Thousand, Seven Hundred
\$18,713,031 to \$25,317,630			Sixty-Six Dollars and
			Fifty Five Cents

Project Description Summary*

1. Historic Building Restoration including but not limited to wood shingle roof replacement, masonry restoration, exterior & interior restoration, structural repair, finishes, electrical and lighting, HVAC upgrades, fire & security system.
2. Utility infrastructure, terminations and new service stubs including transformers and underground electric. Coordination with New York State Electric and Gas Utility.
3. IT infrastructure, Building Wi-Fi, security systems including access gates and camera system
4. Geothermal wells and heat pumps
5. Parking lot and new and existing road construction (chip-seal, stabilized turf)
6. Bio-retention Ponds and grading
7. Walkways (chip-seal, blue stone, exposed aggregate) & stairs, ADA ramps
8. Stone wall (dry laid) restoration
9. Soil, Sod and Plantings (gardens, specimen trees, shrubs, plants)
10. Heritage Tree protection, pruning, removals & transplanting
11. Site lighting, furnishing and wayfinding
12. Public opening scheduled to celebrate the 250th Anniversary of the American Revolution on the 4th of July 2026.

Pricing for the following Add/Alternates is being solicited:

Alternate #1 – Carriage Barn/Visitor Center: Select interior and exterior improvements to convert structure for year-round use and provide mechanical upgrades to Coachman’s House. Provide all construction and mechanical, electrical, and plumbing improvements.

Alternate #2 – Laundry Building: Reorganize approach to include accessible pathway with new entrance porch and lift.

Alternate #3 – Potting Shed: Select stair and door replacement, foundation wall reinforcement, and electrical upgrades.

Alternate #4 – Brick Cottage: Select improvements including roof replacement, interior shoring, masonry repairs, and mothballing.

*Project Description Summary not intended to list all elements of contract. See project documents including project manual and project drawings.

***** This is a General Construction Contract – Lump Sum with Project Labor Agreement (PLA)*****

The Bid opening will be conducted **ONLY** via WebEx at the link listed below:

<https://meetny.webex.com/meetny/j.php?MTID=m40b9689c6ed92a60ec352816a046e233>

MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISE PARTICIPATION GOALS (MWBE)

The following goals for MWBE participation on this project have been established at:

Minority Owned Business Enterprise (MBE)	17%
Women Owned Business Enterprise (WBE)	13%

SERVICE-DISABLED VETERAN OWNED BUSINESS (SDVOB) GOALS

The following goals for SDVOB participation on this project have been established at:

Service-Disabled Veteran Owned Business	10%

PUBLIC BUILDING LAW § 8(6)

Pursuant to Public Building Law § 8(6), any contracts over \$5,000 for the work of construction, reconstruction, alteration, repair, or improvement of any State building, a responsible and reliable NYS-certified Minority or Women-Owned Business Enterprise that submits a bid within ten percent of the lowest bid will be deemed the apparent low bidder provided that the bid is \$1,628,283 or less (maximum amount has been adjusted for inflation effective January 1, 2024). If more than one responsible and reliable MWBE firm meets the requirements, the MWBE firm with lowest bid will be deemed the apparent low bidder.

PROJECT COMPLETION

The completion date for this project is **560 days or June 19, 2026, whichever is earlier** after agreement has been approved by the NYS Comptroller's Office.

<u>Project Milestones</u>	<u>Date</u>
(1) Bedford House – Heat on & Controlled.	September 15, 2025
(2) Bedford House Substantial Completion. Watertight building envelope and interior complete.	January 15, 2026
(3) Carriage Barn Substantial Completion. Watertight building envelope and interior complete.	March 1, 2026
(4) Site & Landscape Substantial Completion.	May 25, 2026

Project Specific Liquidated Damages (Refer to Article 14.10 of the General Conditions). In the event the Contractor fails to complete all the work on time, the Contractor agrees to pay the Office liquidated damages in the amount of **\$7,000.00/Day** as defined in the General Conditions.

Starting on the advertisement date, the Bidding and Contract Documents may be examined free of charge and obtained via email from Magen Bauer at Magen.Bauer@parks.ny.gov or Tammy Murray Tammy.Murray@parks.ny.gov.

In accordance with State Finance Law, Section 139-j, the following agency staff have been designated as contacts for this contract:

Project Questions

Amanda Tucker, RA	518.807.1884	Amanda.Tucker@parks.ny.gov
Erin Moroney	518.258.2006	Erin.Moroney@parks.ny.gov

Bid Administration

Magen Bauer	518.474.3258	Magen.Bauer@parks.ny.gov
Tammy Murray	518.474.3831	Tammy.Murray@parks.ny.gov

Please note that contacting any other agency staff regarding this contract may be a violation of State Finance Law, Section 139-j, resulting in a determination of contractor non-responsibility.

EXECUTIVE ORDER No. 16

The successful bidder will be required to furnish an Executive Order No. 16 certification form prior to contract award.

The Executive Order can be found here: <https://www.governor.ny.gov/executive-order/no-16-prohibiting-state-agencies-and-authorities-contracting-businesses-conducting>

The Executive Order Certification Form can be found here:

https://ogs.ny.gov/system/files/documents/2022/04/eo16_certification.pdf

BONDS

The successful bidder will be required to furnish a Performance Bond and a Labor and Material Bond/Payment Bond in the statutory form of public bonds required by Sections 136 and 137 of the State Finance Law, each for 100% of the amount of the Contract.

**All Requests For 4:00 PM on Tuesday, September 24, 2024.
Information (RFIs)
are due by:**

**RFIs received after this due date and time will not be processed.
RFIs shall be submitted to: Amanda.Tucker@parks.ny.gov**

**There will be a pre-bid Tuesday, 10:00AM at John Jay Homestead SHS
meeting on September 10, 2024 400 Jay Street
Katonah, NY 10536**

State's Rights to Proposals

By submitting a bid, the Bidder agrees not to make any claim for, or have any right to, damages because of any misinterpretation or misunderstanding of the specifications, or because of any misinformation or lack of information. OPRHP reserves the right to exercise the following:

- Change any of the scheduled dates herein;
- Amend IFB requirement(s) after their release to correct errors or oversights, or to supply additional information as it becomes available;
- Withdraw the IFB, at its sole discretion without any obligation or liability to any vendor;
- Eliminate any mandatory, non-material requirement that cannot be complied with by all of the prospective Bidders;
- Evaluate, accept and/or reject any and all bids, in whole or in part, and to waive technicalities, irregularities, and omissions if, in OPRHP's judgement, the best interests of OPRHP will be served. In the event compliant bids are not received, OPRHP reserves the right to consider late or non-conforming bids as offers;
- Require the Bidder to demonstrate, to the satisfaction of OPRHP, any information presented as part of their proposal;
- Require clarification at any time during the procurement process and/or require correction of arithmetic or other apparent errors for the purpose of assuring a full and complete understanding of a Bidder's proposal and/or to determine a Bidder's compliance with the requirements of this solicitation;

- Disqualify any Bidder whose conduct and/or bid fails to conform to the requirements of the solicitation;
- Use proposal information obtained through OPRHP investigation of a Bidder's qualifications, experience, ability or financial standing, and any material or information submitted by the Bidder in response to OPRHP's request for clarifying information in the course of evaluation and selection under this IFB;
- Prior to the award, determine a tie breaking mechanism for award of the Contract to serve the best interests of OPRHP and the State of New York;
- Negotiate with the successful Bidder within the scope of the IFB to serve the best interests of OPRHP and the State of New York;
- Conduct Contract negotiations with the next ranked responsible Bidder, should OPRHP be unsuccessful in negotiating an Agreement with the selected Bidders;
- Move to the next ranked responsible low Bidder should the low bidder fail to implement the requirements of the bid;
- If OPRHP terminates the Contract for non-performance, OPRHP reserves the right, with the approval of the New York State Office of the Attorney General and the Office of the State Comptroller, to award a contract to the next highest ranked Bidder of the original bid submission within the first twelve months of the award;
- Utilize any and all ideas submitted in the bids received;
- Make an award under the IFB in whole or in part; and
- Seek revisions of bids.

Bids containing false or misleading statements, or which provide project contacts that do not support an attribute or condition claimed by a Bidder, may be disqualified from consideration. If, in the opinion of OPRHP, a statement is intended to mislead OPRHP in its evaluation of the bid, and the attribute, condition, or capability is a requirement of the IFB, the bid shall be disqualified from consideration.

Response to Bidder Questions and Requests for Clarification

OPRHP will provide a written response to all substantive questions and requests for clarification.

Tie Bids

In the event there is a tie final determination will be made by the OPRHP Deputy Commissioner for Capital.

Modification or Withdrawal of Bids

Bid modifications that are submitted in writing and signed by an authorized representative of the bidding firm will be considered for award if received by OPRHP prior to the scheduled proposal due date. Bids may be withdrawn or cancelled prior to the scheduled proposal due date. A bid may be

rejected by OPRHP: if it shows any alteration of terms, conditions, or requirements; for any other irregularities; if it is incomplete, or if it offers an alternate bid not invited by the specifications.

Freedom of Information Law

Your bid to OPRHP, including accompanying documents, is subject to the Freedom of Information Law (FOIL) found in Article 6 of the N.Y. Public Officer Law. FOIL provides that certain records are exempt from disclosure, including those that contain (1) trade secrets, (2) information that, if disclosed, would cause substantial injury to the competitive position of your organization, or (3) critical infrastructure information. Records may be redacted to protect only the portions of documents that fall within a FOIL exemption. An entire document may not be withheld if only a portion of the document is exempt from disclosure. Blanket assertions that information is a trade secret, confidential, or proprietary are insufficient to justify withholding information under FOIL. If you identify information seeking an exemption from public disclosure due to the above-mentioned reasons such request will be reviewed, and a determination will be made as to whether the information is exempt from disclosure under FOIL. However, such submissions seeking non-disclosure will not be considered unless it is accompanied with an explanation justifying the privilege. The State's determination may be appealed pursuant to POL §89(5)(c). Pursuant to POL §87(2)(b), the State, without having to request it, will redact information that "if disclosed would constitute an unwarranted invasion of personal privacy."

Timely Submission

The Bidders are solely responsible for timely delivery of their bid to the location set forth by the stated bid due date/time and are solely responsible for delays in receipt, including but not limited to those due to third-party carriers.

Bidder Proposal Clarification

Prior to award, OPRHP reserves the right to seek clarifications, request proposal revisions, or to request any information deemed necessary for proper evaluation of proposals from all Bidders deemed to be eligible for Contract award. Failure of a bidder to cooperate with OPRHP's effort to clarify a proposal may result in the proposal being labeled as non-responsive and be given no further consideration.

Additionally, OPRHP reserves the right to use information submitted by the Bidder in response to OPRHP's request for clarifying information in the course of evaluation and selection under this IFB.

Bid Review and Contract Approval

The Contract resulting from this IFB will not be effective until approved by the Office of the Attorney General and the Office of the State Comptroller.

Debriefing Sessions

A debriefing is available to any entity that submitted a proposal or bid in response to a solicitation (“Bidder”). A Bidder will be accorded fair and equal treatment with respect to its opportunity for debriefing.

Debriefing must be requested in writing by any bidder within fifteen (15) calendar days of OPRHP notifying the unsuccessful bidders that another vendor was selected.

A bidder’s written request for a debriefing must be submitted to the designated contact listed on the cover of this IFB.

The debriefing will be scheduled within ten (10) business days of receipt of written request by OPRHP or as soon after that time as practicable under the circumstances.

Bid Protest Procedure

OPRHP procedures for handling protests of bid awards are set forth in the Bid Protest Procedures which can be found at the end of this document.

Indemnification

The Contractor agrees to indemnify, defend, save, and hold harmless the State of New York, OPRHP, and their officers, employees, and agents of and from any claims, demands, actions, or causes of action of any kind arising out of the services of the Contractor provided for in this agreement.

Solicitation

This IFB is a solicitation to bid, not an offer of a contract.

Bid Protest Procedures

It is the policy of the Office of Parks, Recreation and Historic Preservation (OPRHP) to provide bidders with an opportunity to administratively resolve disputes or inquiries related to OPRHP contract awards. Bidders are encouraged to seek resolution of disputes through consultation with the Designated Contact(s). After being notified of the results of this contract opportunity, any entity or individual that participated in the procurement may submit a protest of the resulting contract award.

OPRHP reserves the right to suspend, modify, or cancel this procurement at any time during the procurement process. OPRHP also reserves the right to waive or extend the deadlines in this procedure.

Submission of Formal Written Protests

Protests must be received by the Designated Contact no later than five (5) business days after a debriefing or ten (10) business days after the written notice of selection or non-selection for contract award, whichever is later.

Protests must be submitted in writing, clearly marked as a protest on the envelope or in the email subject line, and include the following information:

1. Solicitation or contract number
2. Name, address, email address and telephone number of the filer
3. Detailed statement of the legal and factual grounds for the protest
4. Statement of the relief requested
5. Copies of relevant documents

Agency Response

Within 30 business days of receipt of a protest, OPRHP's protest officer (the Director of Audit or her designee) will respond with a protest determination stating the agency's decision on the protest and the reasoning on which it is based. In making a determination, the protest officer will consider the legal and factual grounds stated in the protest, consult with the Designated Contact and appropriate program staff, and review all relevant documents.

Finality; Appeal

For contract opportunities subject to the approval of the Office of the State Comptroller, the protesting party may appeal OPRHP's protest determination to the Office of the State Comptroller in accordance with the regulations contained in Part 24 of Title 2 of the New York Codes, Rules and Regulations.

For contract opportunities that are not subject to the approval of the Office of the State Comptroller, OPRHP's protest determination is the conclusive and final determination of the protest.

Nothing in these bid protest procedures is intended to limit or impair the rights of any bidder to seek and pursue remedies of law through the judicial process.

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Instructions to Bidders

INSTRUCTIONS TO BIDDERS

EXAMINATION OF DOCUMENTS

Carefully examine and be familiar with the Bidding and Contract Documents.

Examine the information concerning subsurface or other latent physical conditions. It is presented in good faith but is not intended as a substitute for personal investigation, interpretations or judgment of the Contractor.

VISIT TO THE SITE

Visit the site of the work prior to submitting bid. Phone Designated Contact listed on the Notice to Bidders for appointment 24 hours in advance of visit.

Become familiar with restrictions and regulations relating to the Facility. Existing restrictions and regulations will not be considered as grounds for any additional cost over the Contract sum.

Assume the risk of encountering any subsurface or other latent physical condition which can be reasonably anticipated on the basis of documentary information provided by the Office of Parks, Recreation and Historic Preservation (the Office) and from inspection and examination of the site.

Interpretations of Contract Documents by Facility personnel are not binding.

RESOLUTION OF DISCREPANCIES AND AMBIGUITIES

Direct all questions regarding the intent or meaning of the drawings or specifications to the contact person identified on the cover of the Contract Documents. Such an inquiry may be telephoned or submitted in writing using provided RFI form. The reply to such an inquiry, when deemed necessary, will be communicated by Addendum to all persons who have obtained drawings and specifications.

Pre-bid inquiries answered by means other than Addenda will not be binding.

PREPARATION OF BIDS

Bidders shall submit bids on the official form furnished by the Office. Make no changes of any kind in the bid form phraseology, or anywhere on the bid form. Fill in all blank spaces legibly and in ink. Once the form has been completed in ink, bidders shall scan and email the bid form and bid security to the email address listed on the Notice to Bidders. The document must be in PDF format – any hyperlink to the file will not be accepted. Please note, there is a 20MB limit when submitting attachments via email. If email is not available to the bidder, an address for hard copies can be obtained from the designated contact identified on the Notice to Bidders. All

amounts shall be given in full in both writing and also in figures. In case of a discrepancy between the amount written in words and that given in figures, the amount written in words is binding. Make no erasures on the bid form. If a mistake is made, use a new bid form. New forms may be obtained at the email address shown on the Notice to Bidders.

When the Contract Documents require alternate price quotations, indicate the amounts to be added to or deducted from the base bid. If the work is to be performed at no change in cost, indicate the word "NONE". Any bid which fails to indicate a sum or the word "NONE", shall be considered informal and may be rejected.

Sign the bid form in the space provided. An officer or a principal of a corporation or a partnership signing for the bidder shall print or type the legal name of the person, partnership or corporation on the line provided and place his or her signature after "SIGN BID HERE". The same procedure shall apply to the bid of a joint venture by two or more firms, except that the signature and title of an officer or a principal of each member firm of the joint venture shall be required.

Note in the spaces provided on the bid form, the Addenda, by numbers and dates, which have been received. If no Addenda have been received, insert the word "NONE".

ADDRESS OF PROSPECTIVE BIDDER

Use street address in addition to a Post Office Box address (if any).

BID SECURITY INFORMATION

Bid Security, in the amount shown on the Notice to Bidders, is required to be submitted with the bid as a guarantee that the bidder will enter into the Contract if awarded, and that the bidder will furnish all required information to enter into the Contract within ten days after receipt of notice of award. All bidders are required to scan their bid security and include the copy with their electronically submitted bid. The document must be in PDF format – any hyperlink to the file will not be accepted. Please note, there is a 20MB limit when submitting attachments via email. Bid Security shall consist of a bid bond or a certified check or a bank check drawn upon a legally incorporated bank or trust company and payable to the Office of Parks, Recreation and Historic Preservation. The bid bond must be from a Surety company approved by the State. The form of any bid bond and the surety issuing it shall be subject to the approval of the Office. The original hardcopy bid bonds for the two lowest bidders must be postmarked and sent via certified mail within 48 hours of receiving the bid summary from the Office. The Bid Security of the two lowest bidders will be returned upon the acceptance of the Performance and the Labor and Material Bonds and the execution of the Contract by the lowest bidder. The Bid Security of all other bidders will be returned as soon as possible after the low bidder is determined.

NEW YORK STATE BUSINESSES INFORMATION

Contractors are encouraged to use and work with New York State Businesses. Accordingly, bidders are required to complete and submit the form which will allow us to track this information. Please complete and include the form "Encouraging Use of New York State

Businesses in Contract Performance” with your bid. The apparent low bidder will be asked to identify the New York State businesses that will be used.

SUBMISSION OF BID

Submit Bid Form and Bid Security, if required in the Notice to Bidders, via scanned hard copies to the emailed listed in the notice to bidders.

The Contract D number and Company Name should be clearly marked in the subject line of the email, along with the words “BID SUBMISSIONS”.

All bids must be received at or before the time specified on the Notice to Bidders, whether to the email address or the physical mailing address designated for bid opening.

A late bid will be considered if (1) its arrival at the place designated after the time specified can be shown by documentary or other proofs to be due to the mishandling by employees of the Office and (2) that absent such mishandling, the bid would have arrived timely. Delays in the U.S. Mail or any other means of transmittal, including by couriers or agents of the State of New York (State), other than employees of the Office will not suffice to excuse late arrival.

A late bid not eligible for consideration will be returned unopened with notification of the reason for its refusal.

MODIFICATION OF BID

Bid modifications by amendment may be considered on condition that:

1. The amendment arrives before the time set for the bid opening.
2. The amendment is in writing and signed by the bidder.
3. The bid, as amended, conforms in all respects with the Contract Documents.

WITHDRAWAL OF BID

A bid may be withdrawn at any time prior to the time specified for opening.

After the bid opening, a bidder may request the withdrawal of its bid by a written application on the grounds of a demonstrable mistake. Such written application must be made within seven days after the bid opening unless the Office, at its sole discretion, grants a time extension. Upon receiving such written application, the Office will review and decide the bidder’s withdrawal request based on the three elements below. A bid may be withdrawn if, before any detrimental change of position by the State has occurred, the bidder establishes that:

1. a verifiable error occurred in the computation of the bid, and
2. absent the mistake the bid would have been substantially higher, and
3. if directed to proceed with the Contract at the price set forth in the bid, the bidder would suffer a substantial loss on the contract.

Each element must be proven by clear and convincing evidence in order to justify withdrawal. The judgment of the Office shall be final and conclusive. Should the judgment be against allowing withdrawal, then the failure of the bidder to proceed would be cause for forfeiture of its bid bond.

DISQUALIFICATION OF BIDDERS

The State reserves the right to disqualify bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices upon the part of the bidder.

OPENING OF BIDS

Bids shall be opened as announced in the Notice to Bidders. Bidders or their authorized agents are invited to attend via Webex.

AWARD OF CONTRACT

The Contract may be awarded to the lowest responsible and reliable bidder as will best promote public interest.

If alternates are included in the bidding documents, the Office reserves the right to accept or reject any or all alternates. The lowest bid will be determined by the sum of the base bid and, where applicable, the accepted alternates and/or unit pricing in the manner prescribed on the Bid Form.

If alternate base bids are indicated in the bidding documents, the low bid will be determined by the lowest amount bid for any of the alternate base bids.

The Office reserves the right to reject any or all bids, and advertise for new bids, if in its opinion the best interest of the Office will hereby be promoted. In the event that all bids are rejected, each bidder will be so notified.

No later than 45 days after the bid opening, the Office shall accept bids or reject all bids. Written notification of acceptance with the final Contract shall be emailed or delivered to the selected bidder. If the selected bidder fails to execute and return the Contract with the bidder's Performance Bond, Labor and Material Bond, and Certificate of Insurance, within ten days of receipt of notification, the Office shall have the right to reject the bid and select next lowest bidder. In this case, the Bid Security of the first bidder shall be forfeit.

INFORMALITIES

Any bid which fails to conform to the requirements of the Bidding and Contract Documents may be rejected.

The Commissioner or Commissioner's Representative reserves the right to waive as an informality any irregularity contained in any bid or afford the bidder an opportunity to remedy any deficiency resulting from a minor irregularity.

EQUAL EMPLOYMENT OPPORTUNITY

If the value of this contract exceeds \$25,000, no later than seven days after being notified of the award of the contract, the Bidder shall submit, an Equal Employment Opportunity Policy Statement on a form to be provided by the Office.

DETERMINATION OF CONTRACTOR'S RESPONSIBILITY

1. The State Finance Law requires that contracts for public work in the State of New York be awarded to the lowest responsible and reliable bidders as will best promote the public interest.
2. In order to assist the State in determining the responsibility and reliability of the apparent low bidder for any competitively bid contract of \$100,000 or more, and any proposed subcontract work valued at \$100,000 or more, each apparent low bidder and all proposed subcontractors will be required to submit a "New York State Vendor Responsibility Questionnaire For-Profit Construction" (Form CCA-2) prior to contract award or subcontractor approval.
3. The apparent low bidder must submit a completed "New York State Vendor Responsibility Questionnaire For-Profit Construction" (Form CCA-2) to the foregoing address within 24hours after the bids are opened.
4. The Office recommends that vendors file the required Vendor Responsibility Questionnaire online via the New York State VendRep System, however, vendors may choose to complete and submit a paper questionnaire. To enroll in and use the New York State VendRep System, see the VendRep System Instructions available at : http://www.osc.state.ny.us/vendrep/vendor_index.htm or go directly to the VendRep System online at <https://portal.osc.state.ny.us>. For direct VendRep System user assistance, the Office of the State Comptroller's Help Desk may be reached at 866-370-4672 or 518-408-4672 or by email at ciohelpdesk@osc.state.ny.us. Vendors opting to file a paper questionnaire can obtain the appropriate questionnaire from the VendRep website www.osc.state.ny.us/vendrep or may contact the Office of Parks Recreation and Historic Preservation (if not included already in these documents).

5. ADDITIONAL CONTRACTOR RESPONSIBILITY

(A) Contractor shall at all times during the Contract term remain a responsible vendor. Contractor agrees, if requested by the Office, to present evidence of its continuing legal authority to do business in New York State, its integrity, experience, ability, prior performance, and organizational and financial capacity to carry out the terms of this Contract.

(B) The Office reserves the right to suspend any or all activities under this Contract, at any time, when the Office discovers information that calls into question the responsibility of Contractor. In the event of such suspension, Contractor will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, Contractor must comply with the terms of the suspension order. Contractual activities may resume at such time as the Office issues a written notice authorizing resumption of contractual activities.

(C) Notwithstanding the provision of Article 15 of the General Conditions of the Contract pertaining to Termination and Revocation, upon written notice to Contractor and a reasonable opportunity to be heard with appropriate Office staff, this Contract may be terminated by the Office at Contractor's expense where Contractor is determined by the Offices to be non-responsible. In such event, State Parks may pursue available legal or equitable remedies for breach.

OMNIBUS PROCUREMENT ACT OF 1992

1. It is the policy of the New York State Office of Parks, Recreation and Historic Preservation to maximize opportunities for the participation of New York State business enterprises, including minority and women-owned enterprises, as bidders, subcontractors and suppliers on its procurement contracts.
2. Information on the availability of New York State subcontractors and suppliers is available from:
NYS Department of Economic Development
Division for Small Business
One Commerce Plaza, 9th Floor
Albany, NY 12245
Telephone: (518) 473-0499 FAX: (518) 486-7577

NOTE: Companies requesting lists of potential subcontractors and suppliers are encouraged to identify the SIC code, size and location of vendors.

3. A directory of certified minority and women-owned business enterprises is available online at <https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp> or from:
NYS Department of Economic Development
Division of Minority and Women's Business Development
625 Broadway
Albany, New York 12207
Telephone: (518) 292-5250 Fax: (518) 292-5803
4. Bidders located in foreign countries are hereby notified that New York State may seek to obtain and assign or otherwise transfer offset credits created by this procurement contract to third parties located in New York State. The successful contractor shall agree to cooperate with the State in efforts to get foreign countries to recognize offset credits created by the procurement contract.

5. When the bid amount is equal to or greater than \$1,000,000, the bidder is required to certify compliance with the Omnibus Procurement Act of 1992 to the Office in its bid proposal.
6. The apparent low bidder will be required to submit documentation of such compliance with the requested documents.

LIQUIDATED DAMAGES

The agreement documents contain a provision that the Contractor will pay liquidated damages for each day of delay in the physical completion of the work.

WORKERS' COMPENSATION INSURANCE AND DISABILITY BENEFITS REQUIREMENTS

A policy covering the obligations of the Contractor in accordance with the Workers' Compensation Law and the Disability Benefits Law covering all operations under the contract, whether performed by the contractor or the subcontractor is required for all contracts. See Article 21.4 and 21.5 of the General Conditions.

ELECTRONIC PAYMENTS

The Office encourages all Contractors and Vendors doing business with New York State to enroll in and receive payments electronically. Visit the State Comptroller's web site: <http://www.osc.state.ny.us/vendors/index.htm#epayment> to enroll in the ePayments Program.

FORMS

Various provisions of the bidding and contract documents may require a bidder or contractor to submit certain forms. Not all forms will be required of all bidders, and some forms, such as Bid Bonds, Performance Bonds and Labor and Material Bonds will generally be provided by others (e.g., the American Institute of Architects - AIA). However, samples and/or copies of all forms are available from the Contact Person(s) designated on the first page of the Bidding and Contract documents. Forms available from the Contact Person include but are not limited to: Reporting forms for State and Federal programs which provide for participation by minority group members and women as suppliers, subcontractors and employees; Contractor's Monthly Activity Report and Application for Payment; Certificate of Acceptance (final payment); Prime Contractor's Certification; Subcontractor's Certification; Workers Compensation and Payroll Forms.



ENCOURAGING THE USE OF NYS BUSINESSES IN CONTRACT PERFORMANCE

Bidder's Name _____ **Date:** _____

New York State businesses have a substantial presence in State contracts and strongly contribute to the economies of the state and nation. In recognition of their economic activity and leadership in doing business in New York State (NYS), bidders are strongly encouraged and expected to consider NYS businesses in the fulfillment of the requirements of this contract. Such partnering may be as sub-contractors, suppliers, or other supporting roles (herein collectively called "Subcontractors").

Bidders need to be aware that, if selected, they will be strongly encouraged, to the maximum extent practical and consistent with legal requirements, to use responsible and responsive NYS Subcontractors in performing this contract, including without limitation: (i) purchasing commodities; and (ii) utilizing services and technology. Further, bidders are reminded that they must continue to utilize small, minority and women-owned businesses, consistent with the current State law / this contract.

Utilizing New York State businesses in State contracts will help create more private sector jobs, rebuild New York's infrastructure, and maximize economic activity to the mutual benefit of the contractor and its NYS business partners. NYS businesses will promote the contractor's optimal performance under the contract, thereby benefitting public sector programs that are supported by associated procurements.

Public procurements can drive and improve the State's economic engine through promotion of the use of New York businesses by its contractors. The State therefore encourages bidders to provide maximum assistance to NYS businesses in their use of the contract. The potential participation by all kinds of NYS businesses will deliver great value to the State and its taxpayers.

Bidders can demonstrate their commitment to the use of NYS businesses by responding to the questions below (Note: Negative responses will not adversely affect contract selection):

(A) Do you anticipate the need for Subcontractors fulfilling the requirements of this contract?

Yes ____ No ____

(B) Do you anticipate that NYS businesses will be used in the performance of this contract as Subcontractors?

Yes ____ No ____

NOTE: If the answer to question B is Yes, please identify the NYS business that will be used and attach identifying information (e.g. name, address, contact information, nature of business). In addition, please be prepared to provide the NYS Office of Parks, Recreation and Historic Preservation with the amounts paid to NYS businesses on a regular basis (at least quarterly).

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Supplementary Conditions for PLA

SUPPLEMENTARY CONDITIONS – PROJECT LABOR AGREEMENT (PLA)

This supplement modifies the General Conditions. Where any part of the General Conditions is modified by this supplement, the unaltered provisions of that part shall remain in effect.

ARTICLE 2 – DEFINITIONS

Add the following:

2.24.1 The term “Project Labor Agreement” means a pre-hire collective bargaining agreement, negotiated on behalf of the Office of Parks, Recreation and Historic Preservation, covering the terms and conditions of employment for all workers on the project, without distinction as to trade or contractor having jurisdiction over work taking place for the project.

ARTICLE 4 – SUBMITTALS

Add the following:

4.9 The Contractor shall submit to the Directors Representative a Letter of Assent for each subcontractor of any tier for the work performed on the project.

ARTICLE 7 – CONTRACTOR’S SUPERVISION

Add the following:

7.5 Before any part of the contract shall be sublet, the Contractor shall secure a Letter of Assent with the provisions of the Project Labor Agreement from each subcontractor of any tier for the work performed on the project.

7.6 After the contract is awarded, and thereafter any change of subcontractor or agreed-upon amount to be paid to each shall require the approval of the public owner, upon a showing presented to the public owner of legitimate construction need for such change, which shall be open to public inspection. Legitimate construction need shall include, but not be limited to, a change in project specifications, a change in construction material costs, a change to subcontractor status as determined pursuant to paragraph (e) of subdivision two of section two hundred twenty-two of the labor law, or the subcontractor has become otherwise unwilling, unable or unavailable to perform the subcontract. The Director’s Representative shall approve any such changes prior to the Contractor’s execution of such change by utilizing and submitting the appropriate form.

ARTICLE 27 – MISCELLANEOUS PROVISIONS

Add the following:

27.5 The Project Labor Agreement has been executed to promote labor harmony on the project; expedite the construction process and reduce construction costs; provide standardized terms and conditions of employment, flexibility in scheduling, enhancement of employment opportunities for minority, women and disadvantaged persons; and create a safer construction site. The Project Labor Agreement is bound in the Project Manual and forms a part of the Contract Documents.

END OF DOCUMENT

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Supplementary Instructions to Proposers for PLA

SUPPLEMENTARY INSTRUCTIONS TO PROPOSERS – PROJECT LABOR AGREEMENT

This Supplement modifies the Instructions to Proposers. Where any part of the Instructions to Proposers is modified by this supplement, the unaltered provisions of that part shall remain in effect.

4. PREPARATION OF PROPOSALS

Add the following:

Each proposer on a public work contract, where the preparation of separate specifications is not required, shall submit with its bid a separate attachment for electronic submissions or sealed envelope that lists that names each subcontractor that the proposer will use to perform work on the contract, and the agreed-upon amount to be paid to each, for: (a) plumbing and gas fitting, (b) steam heating, hot water heating, ventilating and air conditioning apparatus and (c) electric wiring and standard illuminating fixtures. Each proposer shall require each proposed subcontractor to complete form PROJECT LABOR AGREEMENT – LETTER OF ASSENT, to be included with the list of subcontractor names. After the low bid is determined, the separate attachment or sealed envelope with the list of subcontractors submitted with such low bid shall be opened and the names of such subcontractors shall then be announced.

All proposers must complete form PROJECT LABOR AGREEMENT LIST OF SUBCONTRACTORS (Sub List). This form should be legible and it must be included, in a separate attachment or sealed envelope, with the other bid documents in the submission email or Bid Envelope. Proposers who plan to self-perform work must indicate this on form Sub List, as required. If any subcontractor is to be used, form PROJECT LABOR AGREEMENT – LETTER OF ASSENT must be completed and submitted in the attachment or sealed envelope.

Sign form Sub List, and Letter of Assent, in the spaces provided. An officer or a principal of a corporation or a partnership signing for the firm shall print or type the title of the person on the line provided. The same procedure shall apply to the proposal of joint venture by two or more firms, except that the signature and title of an officer or a principal of each member firm of the joint venture shall be required. All signatures must be original, electronic signatures are acceptable.

No contract will be awarded without a completed and signed form Sub List and applicable completed and signed Letters of Assent. Failure to submit, sign or provide Subcontractor's Contract Amount on form Sub List, or failure to submit completed Letters of Assent, will result in disqualification of the proposal.

The attachment with lists of subcontractors and Letters of Assent submitted by all other proposers shall remain unopened and sealed envelope submissions shall be returned to them unopened after the contract is awarded.

After proposals are received, any changes by the low proposer to subcontractors or agreed-upon amounts to be paid to each subcontractor shall require the approval of the Director's Representative pursuant to Section 135 of the State Finance Law. Submit any proposed changes on form PROJECT LABOR AGREEMENT CONTRACTOR'S PROPOSAL FOR SUBCONTRACTOR CHANGE (Sub Change). For changes proposed before award of the contract, send form Sub Change to the Designated Contact.

6. SUBMISSION OF PROPOSAL

Change the first paragraph to read:

Submit Proposal Form, completed Project Labor Agreement - Letter of Assent, Bid Security, if required in the Notice to Bidders, Offerer Disclosure of Prior Non-Responsibility Determinations and form Sub List via email or in a separate sealed envelope, within the sealed Proposal Envelope. Telephone, telegraph, or fax bids will not be accepted.

END OF DOCUMENT



Parks, Recreation and Historic Preservation

PROJECT LABOR AGREEMENT LIST OF SUBCONTRACTORS

Contract No.: _____

NOTE: This form is required for "Single-Contract" projects with a Project Labor Agreement (PLA). Failure to submit this form correctly will result in disqualification of the bid.

Contractor's Name and Address:		Project Description (<i>Project Title, Facility Name and Address</i>):		Bid Date:	Total Contract Amt.:
Federal ID No.					
Indicate ANY work to be self-performed by the contractor in the following categories (check all that apply): ☐ Plumbing and Gas Fitting ☐ Steam Heating, Hot Water Heating, Ventilating and AC Apparatus ☐ Electric Wiring and Standard Illuminating Fixtures If ALL contract work is to be self-performed, i.e., no subcontractors will be used, please check this box ☐ , skip to the bottom of this form, and sign it as required.					
Subcontractor's Name, Address and Federal ID No.	Check (✓) only one .			General Description of Work	Subcontractor's Contract Amt.
	Plumbing and Gas Fitting	Steam Heating, Hot Water Heating, Ventilating and AC Apparatus	Electric Wiring and Standard Illuminating Fixture		
Federal ID No.	☐	☐	☐		
Federal ID No.	☐	☐	☐		
Federal ID No.	☐	☐	☐		
This form must be filled out completely and legibly, signed by a company authorized representative and included in a separate, sealed envelope within the bid envelope. Use Page 2 if needed. Failure to complete this form accurately and in its entirety, in accordance with the Instructions to Bidders, will result in disqualification of the bid.					
Company Authorized Signature: _____		Title: _____		Date: _____	



Parks, Recreation and Historic Preservation

CONTRACTOR'S PROPOSAL FOR SUBCONTRACTOR CHANGE

Contract No.: _____

NOTE: This form is to be used for "Single-Contract" projects, i.e., those exempt from Wicks Law or those with Project Labor Agreements.

SECTION 1 – Contractor's Information			
Name and Address:		Project Description: <i>(Project Title, Facility Name and Address)</i>	Total Contract Amt:
			\$
Federal ID No.			
SECTION 2 – Proposed Change			
Nature of proposed change: <i>(check all that apply)</i>	☐ Substitution of new subcontractor for current subcontractor – complete Sections 3, 4 and 5. ☐ Addition of new subcontractor – complete Sections 4 and 5. ☐ Modify Subcontractor's Contract Amount – show proposed amount in Sections 3 and/or 4, and complete 5.		
Provide justification for proposed change (e.g., change in project specifications, material costs, subcontractor status, etc.):			
SECTION 3 – Current Subcontractor's Information			
Name and Address:		General Description of Work:	Subcontractor's Contract Amt:
			Current Proposed
			\$ \$
Federal ID No.			
Category of Work: ☐ Plumbing and Gas Fitting ☐ Steam Heating, Hot Water Heating, Ventilating and AC Apparatus ☐ Electric Wiring and Standard Illuminating Fixtures			
SECTION 4 – Proposed Subcontractor's Information			
Name and Address:		General Description of Work:	Subcontractor's Contract Amt:
			Current Proposed
			----- \$
Federal ID No.			
Category of Work: ☐ Plumbing and Gas Fitting ☐ Steam Heating, Hot Water Heating, Ventilating and AC Apparatus ☐ Electric Wiring and Standard Illuminating Fixtures			
SECTION 5 – Approvals			
Contractor's Authorized Representative:		NYS OPRHP:	
_____ Signature		_____ Signature of Director's Representative	
_____ Date (required)		_____ Date (required)	
_____ Printed Name		_____ Printed Name	
_____ Phone No.		_____ Phone No.	

PROJECT LABOR AGREEMENT LIST OF SUBCONTRACTORS

Contract No.: _____

Subcontractor's Name, Address and Federal ID No.	Check (√) <i>only</i> one.			General Description of Work	Subcontractor's Contract Amt.
	Plumbing and Gas Fitting	Steam Heating, Hot Water Heating, Ventilating and AC Apparatus	Electric Wiring and Standard Illuminating Fixture		
Federal ID No.	☐	☐	☐		
Federal ID No.	☐	☐	☐		
Federal ID No.	☐	☐	☐		
Federal ID No.	☐	☐	☐		
Federal ID No.	☐	☐	☐		
Federal ID No.	☐	☐	☐		

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John Jay Homestead PLA

**PROJECT LABOR AGREEMENT
COVERING
SITE AND BUILDING ENHANCEMENTS AT JOHN JAY HOMESTEAD STATE
HISTORIC SITE
NYSOPRHP PROJECT #TA-JJ-2023
CONTRACT # D006292**

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**PROJECT LABOR AGREEMENT
SITE AND BUILDING ENHANCEMENTS AT JOHN JAY HOMESTEAD STATE
HISTORIC SITE**

ARTICLE 1- PREAMBLE

WHEREAS, New York State Office of Parks, Recreation and Historic Preservation, ("NYS Parks"), desires the efficient, safe, quality, and timely completion of a construction project relating to the Site and Building Enhancements at John Jay Homestead State Historic Site Project in a manner designed to afford the lowest reasonable costs to the NYS Parks, and the Public it serves, and the advancement of permissible statutory objectives;

WHEREAS, the NYS Parks has engaged Seeler Engineering, P.C. ("Seeler") to undertake an analysis of whether the use of a Project Labor Agreement will best serve the NYS Parks interest in obtaining the best work at the lowest possible price, preventing favoritism, fraud and corruption, and other considerations such as the impact of delay, the possibility of cost saving advantages, and any local history of labor unrest; and

WHEREAS, Seeler's *Report Project Labor Agreement Benefits Analysis*, dated June 4, 2024 ("*Report*"), concluded that use of a Project Labor Agreement would provide NYS Parks with measurable economic benefits and would promote NYS Parks interest in obtaining the best work at the lowest prices as well as preventing favoritism, fraud and corruption; and

WHEREAS, the NYS Parks has carefully reviewed and considered Seeler's *Report* and finds that a PLA would satisfy the criteria as set forth in Section 222 of New York State Labor Law and has issued a directive, dated June 27, 2024 to pursue a PLA: and

WHEREAS, this Project Labor Agreement will foster the achievement of these goals, inter alia, by:

- (1) providing a mechanism for achieving the most cost efficient means of construction, including direct labor cost savings;
- (2) avoiding the costly delays of potential strikes, slowdowns, walkouts, picketing and other disruptions arising from work disputes and promoting labor harmony and peace for the duration of the Project;
- (3) standardizing the terms and conditions governing the employment of labor on the Project;
- (4) permitting wide flexibility in work scheduling and shift hours and times at fair pay rates;
- (5) providing comprehensive and standardized mechanisms for the settlement of work disputes, including those relating to jurisdiction;
- (6) furthering public policy objectives as to improved employment opportunities for minorities, women and the economically disadvantaged in the construction industry; and
- (7) ensuring a reliable source of skilled and experienced labor; and,

WHEREAS, the Building and Construction Trades Council of Westchester and Putnam

Counties, New York, AFL-CIO and its affiliated local Unions and their members, desire to provide assistance in meeting these operational needs and objectives as well as to provide stability, security and work opportunities afforded by a Project Labor Agreement; and

WHEREAS, the Parties desire to maximize Project safety conditions relating to the Project;

NOW, THEREFORE, the Parties enter into this Agreement, and agree to the following terms and conditions:

SECTION 1.1 PARTIES TO THE AGREEMENT

This is a Project Labor Agreement ("Agreement") entered into for certain construction work to be performed as part of the "Site and Building Enhancements at John Jay Homestead State Historic Site Project" (as defined below) by and between: (i) the Prime Contractor for this Project; (ii) the Building and Construction Trades Council of Westchester and Putnam Counties, New York, AFL-CIO, on behalf of itself and its affiliated local union members; and (iii) the signatory Local Unions on behalf of themselves and their members.

ARTICLE 2 - GENERAL CONDITIONS

SECTION 2.1 DEFINITIONS

Throughout this Agreement:

(A) "Union Parties" and "Unions" means the Building and Construction Trades Council of Westchester and Putnam Counties, AFL-CIO and the Local Unions individually and collectively;

(B) "Local Union(s)" means the Local Unions that sign this Agreement, individually and collectively;

(C) "Project" means Site and Building Enhancements at John Jay Homestead State Historic Site;

(D) "Project Work" means the reconstruction/rehabilitation of various components of the John Jay Homestead structures on the grounds and site work and landscaping, as more fully set forth in Article 3, Section 3.1;

(E) New York State Office of Parks, Recreation and Historic Preservation or its designated representative is referred to as the "NYS Parks" or "Owner";

(F) "Owner's Representative" or "OR" means ARCADIS, US, Inc. working as Agent for NYS Parks and will not perform work covered under this Agreement;

(G) "Prime Contractor" or "PC" means the contractor holding the contract for the Project Work with NYS Parks;

(H) "Contractor(s)" means the Prime Contractor and each subcontractor, of whatever tier engaged in on-site construction work on the Project within the scope of this Agreement as defined in Article 3; and

(I) "WBTC" means the Building and Construction Trades Council of Westchester and Putnam Counties, New York, AFL-CIO.

Whenever in this Agreement the NYS Parks is authorized or permitted to take any action, such action may be taken by either the NYS Parks or the Owner's Representative.

SECTION 2.2 CONDITIONS FOR AGREEMENT TO BECOME EFFECTIVE

This Agreement shall not become effective unless each of the following conditions are met: (1) the Agreement is signed by the WBTC and the Local Unions having jurisdiction over the Project work and is approved by the National Building and Construction Trades Department, AFL-CIO; (2) the Agreement is signed by the Prime Contractor; (3) the Agreement is approved by the NYS Building & Construction Trades Council; and (4) the Agreement is authorized by the NYS Parks.

SECTION 2.3 ENTITIES BOUND & ADMINISTRATION OF AGREEMENT

This Agreement shall be binding on all signatory Unions, and their affiliates and all Contractors performing on-site Project Work as defined in Article 3. Contractors shall include in any subcontract that they let for performance during the term of this Agreement a requirement that their Subcontractors, of whatever tier, become bound by this Agreement with respect to subcontracted work performed within the scope of Article 3 and require that each Subcontractor, of whatever tier, sign a letter of assent (Schedule B). The Contractors shall use their best care, skill and diligence in supervising and directing all work on the Project. This Agreement shall be administered by the Prime Contractor, for the benefit of NYS Parks, which is an intended third-party beneficiary of this Agreement.

SECTION 2.4 SUPREMACY CLAUSE

This Agreement, together with the local Collective Bargaining Agreements appended hereto as Schedule A, represents the complete understanding with respect to the Project and supersedes any national agreement, local agreement or other collective bargaining agreement of any type which would otherwise apply to Project Work, in whole or in part, except that in the event a Contractor is signatory to the NTL Articles of Agreement, the National Stack/Liner/Chimney Agreements, the National Cooling Tower Agreement, the UA/IBEW Joint National Agreement for Instrument and Control Systems Technicians, or the National Agreement of the International Union of Elevator Constructors, those agreements shall apply (except that notwithstanding the foregoing National Agreements, the Work Stoppages and Lockouts, the Grievance & Arbitration Procedure and the Jurisdictional Disputes Provisions found at Articles 7, 9, and 10 of this Agreement shall still apply). Where a subject covered by the provisions of this Agreement is also covered by a Schedule A, the provisions of this Agreement shall prevail. If this Agreement is silent on any matter addressed in the applicable Schedule A agreement, the Schedule A agreement shall govern. It is understood that this is a self-contained, stand alone, Agreement and that by virtue of having become bound to this Project Agreement, the Contractors will not be obligated to sign any other local, area, or national agreement. Nothing in this Agreement requires employees to join a union or pay dues or fees to a union as a condition of working on the covered project. This Agreement is not, however, intended to supersede independent requirements in applicable local union agreements as to contractors that are otherwise signatory to those agreements and as to employees of such employers performing covered work.

It is further agreed that, where there is a conflict, the terms and conditions of this Agreement shall supersede and override terms and conditions of any and all other national, area, or local collective bargaining agreements, except for work performed under the National Elevators Constructors Agreement and the Joint National Agreement for Instrument Control Systems Technicians, with the exception of Section 2.7, and Articles 7, 9, and 10 of this Agreement, which

shall apply to such work.

SECTION 2.5 LIABILITY

The liability of any Contractor and the liability of any Union under this Agreement shall be several and not joint. The OR, NYS Parks, and any other Contractor shall not be liable for any violations of this Agreement by any other Contractor; and the WBTC and each Local Union shall not be liable for any violations of this Agreement by any other Local Union. No grievance shall be brought directly against NYS Parks or the Owner's Representative under this Agreement. Further, no arbitration decision or award may provide retroactivity of more than sixty (60) days prior to the date of service of a written grievance as described herein, or prior to award and approval of the underlying Contract by the New York Office of the State Comptroller to complete the Project, whichever is lessor.

SECTION 2.6 NYS PARKS – BID SPECIFICATIONS

The NYS Parks shall require in its bid specifications for any Contractor for work within the scope of Article 3, Section 3.1, that each subcontractor shall execute the Letter of Assent in Schedule B and to become bound by this Agreement. The NYS Parks is not a party to this Agreement and shall not be liable in any manner under this Agreement; but the NYS Parks is an intended third-party beneficiary of this Agreement. It is understood that nothing in this Agreement shall be construed as limiting the sole discretion of the NYS Parks (or its designee) in determining which Contractors shall be awarded contracts for Project work. It is further understood that the NYS Parks has sole discretion at any time to terminate, delay or suspend the work, in whole or part, on the Project, or, in the case of NYS Parks, to undertake any of the work itself without regard to this Agreement.

SECTION 2.7 AVAILABILITY AND APPLICABILITY TO ALL SUCCESSFUL BIDDERS

The Unions agree that this Agreement shall be made available to, and shall fully apply to any Contractor who executes the Letter of Assent (and to its Subcontractors of any tier who execute the Letter of Assent), without regard to whether that Contractor (or its Subcontractors) performs work at other sites on either a union or non-union basis and without regard to whether employees of such Contractor (or its Subcontractors) are, or are not, members of any unions. The Prime Contractor shall provide the WBTC a copy of the signed Letter of Assent for each Contractor and Subcontractor prior to the Contractor or Subcontractor performing any work on the Project. This Agreement shall not apply to the work of any Contractor which is performed at any location other than the Project site.

ARTICLE 3 - SCOPE OF THE AGREEMENT

The Project work covered by this Agreement shall be as defined and limited by the following sections of this Article.

SECTION 3.1 THE WORK

This Agreement shall only apply to Project Work as defined in this Article which is generally understood to include the restoration and rehabilitation of multiple historic structures on the Homestead including the Bedford House, the Carriage Barn, the Laundry Building, the Brick

Cottage, and the Potting Shed and historic agricultural landscape including lawn restoration, stone wall rehabilitation, new trees and new shrubs. The Project Work will also include new parking and accessible circulation including trails, and upgrades to existing water, stormwater and sanitary utilities.

Subject to the exclusions in this Article, Project Work means that work defined as all work related to the NYS Parks Project Number TA-JJ-2023 the Site and Building Enhancements at John Jay Homestead State Historic Site Project as delineated by construction contract documents.

To the extent there is any conflict between the above general description and the NYS Parks' express designation of work (or the absence of any designation) in its bid specifications, the NYS Parks express designation (or absence of designation) shall be controlling and determinative of whether work is Project Work within the scope of this Agreement. Any work not included in the NYS Parks' bid specifications is not covered Project Work under this Agreement.

Only work expressly excluded herein shall be excluded work. Specifically excluded from coverage under this Agreement is all work bid and/or awarded prior to the execution of this Agreement and approved by the NYS Parks; maintenance and repair work performed in the normal course of NYS Parks operations; any work completed by the Exhibition Contract; Historic Collection Delivery and Re-installation: Historic Fixture Installation; any work to be completed by the NYS Parks; off-site work not subject to coverage under Section 220 of the New York State Labor Law.

SECTION 3.2 NO INTERFERENCE

Nothing contained herein shall be construed to prohibit, restrict or interfere with the performance of any other operation, work or function which may occur at the Project Site or be associated with the development of the Project Site.

SECTION 3.3 TIME LIMITATIONS

This Agreement shall be limited to Project Work performed under NYS Parks construction contracts which are both bid and awarded after the effective date of this Agreement. This Agreement shall terminate when the project is accepted by the NYS PARKS.

In addition to falling within the scope of Article 3, Section 1, to be covered by this Agreement, Project Work must be (1) advertised and let for bid after the effective date of this Agreement, and (2) the expiration date of this Agreement. It is understood that this Agreement, together with all of its provisions, shall remain in effect for all such Project Work until completion, even if not completed by the expiration date of the Agreement.

This Agreement may be extended by mutual written agreement of the parties

SECTION 3.4 EXCLUDED EMPLOYEES

The following persons are not subject to the provisions of this Agreement, even though performing work on the Project:

- a. Superintendents, Supervisors (excluding General and Forepersons specifically covered by a craft's Schedule A), engineers, inspectors and testers (except for high voltage testers who are performing work traditionally done by members of IBEW Local 3 and/or which is covered by a Local 3 collective bargaining agreement), quality control/assurance personnel, timekeepers, mail carriers, clerks, office workers, messengers, guards, technicians, non-manual employees and all professional, engineering, administration and management persons.
- b. The NYS Parks, any State or Federal agency, authority or entity or any municipality or other public employer, and any of their employees; the NYS Parks' designee, inclusive of the OR as Agent who will not, by scope of its contract or any amendment thereof perform covered work and its employees; and any operations contractor, and its employees, employed by the NYS Parks,
- c. Employees of equipment manufacturers or factory technicians involved in on-site installation or warranty work who participate in a supervisory capacity.
- d. Employees of equipment suppliers performing or assisting in on-site equipment installation or warranty work will work with the respective craft having jurisdiction over such work. The craft must have a certified or qualified (trained) person to assist in the work.
- e. Persons engaged in laboratory, geophysical (other than boring for core samples) or other specialty testing, inspections or surveying not within the jurisdiction of a Trade Union signatory to this Agreement.
- f. Excluded employees shall not apply to the general foreperson and field craft surveyors who are performing work traditionally done by members of IUOE Local 15D and/or which is covered by the Local 15D Surveying and Consultant agreements.
- g. Persons engaged in ancillary Project Site work performed by third parties such as electrical utilities, gas utilities, telephone companies and railroads and such third parties may perform their work to a demarcation point (e.g., the demarcation or terminus point will be the first point of distribution of system service) on the Project site established by the Prime Contractor or Owner's Representative at the commencement of the Project.
- h. Employees, workers, entities and sub-contractors engaged in off-Project site manufacture, modifications, repair, maintenance, assembly, painting, handling or fabrication of components, materials, equipment, modules or machinery or involved in deliveries of those items to and from the Project site's designated drop off points. However, any operation of vehicles on the Project site, site preparation and staging areas, delivery of construction equipment, and, to the fullest extent permitted by law, deliveries made within the geographic jurisdiction of the International Brotherhood of Teamsters Local 456 Schedule A Agreement of major building and construction materials, including but not limited to, fuel oil for construction vehicles and equipment on the Project Site, site preparation, and staging areas, ready mix concrete, asphalt, dynamite, concrete block, lumber, and aggregates, such as, fill, sub-base stone/gravel, and item 4, shall not be excluded and are covered by this Agreement.
- i. Employees of "Artisans" shall be individuals or entities whom Owner may (or may not) employ directly to create unique, one-of-a-kind decorative elements, including architectural finishes for incorporation into the building, with the exception of "Artisans" represented by Local 7, Marble, Tile and Terrazzo union and Painters DC 9, provided Local 7 and DC 9 can supply "Artisans" acceptable to the Contractor and/or the Owner. Employees, workers, or vendors engaged by the Owner to install signage (including digital signage), branding and/or branded wall-covering shall be excluded from this Agreement.

SECTION 3.5 NON-APPLICATION TO CERTAIN ENTITIES

This Agreement shall not apply to the parents, affiliates, subsidiaries, or other joint or sole ventures of any Contractor which do not perform work at the Project. It is agreed, for the purposes of this Agreement only, that this Agreement does not have the effect of creating any joint employment, single employer or alter ego status among NYS Parks, the Owner's Representative and/or any other Contractor. The Agreement shall not apply to the NYS Parks or any state agency, authority, or other municipal or public entity and nothing contained herein shall be construed to prohibit or restrict the NYS Parks or its employees or any NYS Parks or state authority, agency or entity and its employees from performing on or off-site work related to the Project. As the contracts which comprise the Project Work are completed and accepted, the Agreement shall not have further force or effect on such items or areas except where inspections, additions, repairs, modifications, check-out and/or warranty work are designated in writing (copy to Local Union involved) by the OR as work to be performed under the terms of this Agreement.

ARTICLE 4 - UNION RECOGNITION AND EMPLOYMENT

SECTION 4.1 PRE-HIRE RECOGNITION

The Contractors recognize the signatory Unions as the sole and exclusive bargaining representatives of all craft employees who are performing Project Work within the scope of this Agreement as defined in Article 3.

SECTION 4.2 UNION REFERRAL

A. The Contractors agree to hire Project craft employees covered by this Agreement through the job referral systems and hiring halls (where the referrals meet the qualifications set forth in items 1, 2 and 4 of subparagraph B) established in the Local Unions' area collective bargaining agreements (attached as Schedule A to this Agreement), and the Unions agree to provide such craft employees (including apprentices) to all Contractors on a non-discriminatory basis. Notwithstanding this, the Contractors shall have sole right to determine the competency of all referrals; the number of employees required; and the selection of employees for layoff (subject to Section 5.3 of this Agreement). In the event that a Local Union is unable to fill any request for qualified employees within a 48-hour period, excluding Saturdays, Sundays and holidays, after such requisition is made by the Contractor, the Contractor may employ qualified applicants from any other available source. In the event that the Local Union does not have a job referral system, the Contractor shall give the Local Union first preference to refer applicants, subject to the other provisions of this Article. The Contractor shall notify the Local Union of Project craft employees hired within its jurisdiction from any source other than referral by the Union.

B. A Contractor not signatory to any Schedule A collective bargaining agreement may request by name its core employee(s), and the Local will honor referral of those persons who have applied to the Local for Project work and who meet the following qualifications:

- (i) possess any license required by NYS law for the Project Work to be performed;
- (ii) have worked a total of at least 1,000 hours in the construction craft during the prior 3 years;
- (iii) were on the Contractor's active payroll for at least 60 out of the 180 calendar days prior to the contract award; and
- (iv) have the ability to safely perform the basic functions of the applicable trade.

No more than 12.5 percent of the employees covered by this Agreement, per Contractor by craft, shall be hired through the special provisions in this paragraph B above (any fraction shall be rounded to the next highest whole number). Craft forepersons and/or general forepersons shall be included in this 12.5 percent. The Contractor may hire per craft, seven (7) employees referred by the applicable trade or craft, then one (1) employee who is employed by the Contractor, and shall repeat the process, seven and one, until the crew requirements for that craft are met. If requested by the appropriate Union, a Contractor utilizing this provision for by-name referrals shall furnish the Union with a written certification that the individuals requested for referral meet the requirements of (1) - (4) above.

Notwithstanding Section 4.2(B) above, certified Minority- and Women-Owned Business Enterprises and Service-Disabled Veteran-Owned Business (M/W/SDVOB) contractors identified in the contractors approved M/W/SDVOBE utilization plan may use the special provisions in Schedule D.

SECTION 4.3 NON-DISCRIMINATION IN REFERRALS

The Local Unions represent that their hiring halls and referral systems shall be operated in a non-discriminatory manner and in full compliance with all applicable federal, state and local laws and regulations which require equal employment opportunities. Referrals shall not be affected in any way by the rules, regulations, bylaws, constitutional provisions or any other aspects or obligations of union membership, policies or requirements and shall be subject to such other conditions as are established in this Article. No employment applicant shall be discriminated against by any referral system or hiring hall because of the applicant's union membership, or lack thereof.

SECTION 4.4 MINORITY/FEMALE REFERRALS

The Unions recognize and acknowledge that Contractor and Subcontractors shall undertake or continue existing EEO programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex (including gender identity or expression), sexual orientation, military status, age, disability, predisposing genetic characteristics, marital status or domestic violence victim status. For these purposes, EEO shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation.

The Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to acknowledge that such employment agency, labor union, or representative will not discriminate on the basis of race, creed, color, national origin, sex (including gender identity or expression), sexual orientation, military status, age, disability, predisposing genetic characteristics, marital status or domestic violence victim status, and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein.

SECTION 4.5 CROSS AND QUALIFIED REFERRALS

The Local Unions shall not knowingly refer to a Contractor an employee then employed by another Contractor working under this Agreement. The Local Unions shall exert their

utmost efforts to recruit sufficient numbers of skilled and qualified crafts employees to fulfill the requirements of the Contractor.

SECTION 4.6 CRAFT FOREPERSONS AND GENERAL FOREPERSONS

The selection of craft forepersons and/or general forepersons and the number of forepersons required shall be solely the responsibility of the Contractor. All forepersons shall take orders exclusively from the designated Contractor representatives. All forepersons shall be designated as working forepersons at the request of the Contractor.

ARTICLE 5 - UNION REPRESENTATION

SECTION 5.1 LOCAL UNION REPRESENTATIVE

Each Local Union signatory to this Agreement shall be entitled to designate a representative and/or the Business Manager, who shall be afforded access to the Project site.

SECTION 5.2 STEWARDS

(a) Each Local Union shall have the right to designate from among those referred to the Project one working journeyman as a Steward and one alternate for each Contractor per shift, and shall notify the Contractor and the OR of the identity of the designated Steward (and alternate) prior to the assumption of such duties. Stewards shall not exercise supervisory functions and will receive the regular rate of pay for their craft classifications. There will be no non-working Stewards on the Project and there is no requirement that a particular Steward be assigned to work a shift if it will result in overtime.

(b) In addition to their work as an employee, the Steward shall have the right to receive complaints or grievances and to discuss and assist in their adjustment with the Contractor's appropriate supervisor; such activities, however, are not to interfere with the Steward's work unless an emergency situation exists. Each Steward shall be concerned with the employees of the Steward's Contractor and, if applicable, Subcontractors of that Contractor, but not with the employees of any other Contractor. The Contractor shall not discriminate against the Steward in the proper performance of Union duties.

(c) The Stewards shall not have the right to determine when overtime shall be worked or who shall work overtime.

SECTION 5.3 LAYOFF OF A STEWARD

Contractors agree to notify the appropriate Union 24 hours prior to the layoff of a Steward, except in cases of discipline or discharge for just cause. If a Steward is protected against layoff by a Schedule A, such provisions shall be recognized to the extent the Steward possesses the necessary qualifications to perform the work required. In any case in which a Steward is discharged or disciplined for just cause, the Local Union involved shall be notified immediately by the Contractor.

SECTION 5.4 UNION STANDARDS

The Council and its affiliates have a legitimate interest in preventing the undermining of the work opportunities and standards gained through collective bargaining and desire to preserve and protect work opportunities for its members. Therefore, to the extent the work is defined as Project Work

herein not subject to the Excluded Employees provisions of this Agreement, the parties agree that work under this Agreement may be contracted or subcontracted for off-site work only if the employees of that contractor or Subcontractor enjoy the same or greater wages and benefits than employees of the appropriate trade employed on Project Work, and under no circumstances shall employees engaged in the off-site fabrication work designed and fabricated for installation on the project, or other off-site work related to Project Work, receive less than the prevailing wage if applicable, or the wages and benefits required by this Agreement and the Schedule A Agreements including, but not limited to, wages, fringe benefits, and any other economic benefits provided therein. The parties recognize and acknowledge that this provision is a legitimate union standards clause and shall be interpreted, applied or enforced so as not to violate Section 8(e) of the National Labor Relations Act. Disputes, if any, with regard to the interpretation, application and or enforcement of this provision shall be subject to the grievance procedure set forth, herein.

ARTICLE 6 - MANAGEMENT'S RIGHTS

SECTION 6.1 RESERVATION OF RIGHTS

Except as expressly limited by a specific provision of this Agreement, or in required compliance with the directives of NYS Parks or the OR, including standard restrictions related to security and access to the site that are equally applicable to Owner or OR employees, guests, or vendors, Contractors retain full and exclusive authority for the management of their operations including, but not limited to: the right to direct the work force, including determination as to the number to be hired and the qualifications therefore; the employment of Foreman as Contractors staff; the promotion, transfer, layoff of its employees; or the discipline or discharge for just cause of its employees; the assignment and schedule of work; the promulgation of reasonable Project work rules; and the requirement, timing and number of employees to be utilized for overtime work. Where a subject covered by the provisions of this Agreement is also covered by a Schedule A agreement, the provisions of this Agreement shall prevail. If this Agreement is silent on any matter addressed in the applicable Schedule A agreement, the Schedule A agreement shall govern. Nothing contained herein shall be construed so as to allow direction of an Employee to perform work outside the jurisdiction of that Employee's Labor Union affiliation, if any. No rules, customs, or practices which limit or restrict productivity or efficiency of the individual (as determined by the Contractor) and/or joint working efforts with other employees shall be permitted or observed.

SECTION 6.2 MATERIALS, METHODS & EQUIPMENT

With respect to work that falls outside the scope of this Agreement, there shall be no limitation or restriction upon the Contractors' choice of materials, techniques, methods, technology or design, or, regardless of source or location, upon the use and installation of equipment, machinery, package units, pre-cast, pre-fabricated, pre-finished, or pre-assembled materials, tools, or other labor-saving devices. Contractors may, without restriction, install or use materials, supplies or equipment regardless of their source, with the exception of pre-tied wire or welded reinforcing steel. The on-site installation or application of such items shall be performed by the craft having jurisdiction over such work pursuant to an applicable Collective Bargaining Agreement; provided, however, it is recognized that other personnel having special qualifications may participate, in a supervisory capacity, in the installation, check-off or testing of specialized or unusual equipment or facilities as designated by the Contractor. Except to the extent otherwise agreed to by the parties in this writing, all electrical and electronic work, including but not limited

to, the installation, repair and maintenance of all building maintenance wiring systems, telephone, data, fire alarm, signs, TV, security wiring and devices, sound and alarm systems and building automation systems, shall be performed under the IBEW Local 3 Schedule A agreement.

ARTICLE 7 - WORK STOPPAGES AND LOCKOUTS

SECTION 7.1 NO STRIKES-NO LOCK OUT

There shall be no strikes, sympathy strikes, picketing, work stoppages, slowdowns, hand billing, demonstrations or other disruptive activity at or in proximity to any Project Work site for any reason by any Union or employee against any Contractor or employer while performing work at the Project. There shall be no other Union, or concerted or employee activity which disrupts or interferes with traffic (vehicular or pedestrian) in or around the John Jay Homestead site or any access roads to or from either, or with the operation of the NYS Parks, the Owner's Representative, or any Contractor or Subcontractor in or around the John Jay Homestead site. Failure of any Union or employee to cross any picket line or banner line established by any union, signatory or non-signatory to this Agreement, or the picket, banner or demonstration line of any other organization, at or in proximity to the Project Site or any other site where Project Work is performed or could be adversely affected is a violation of this Article. There shall be no lockout on Project Work by any signatory Contractor. Contractors and Unions shall take all steps necessary to ensure compliance with this Section 7.1 and to ensure uninterrupted construction, the free flow of traffic in, out and around Project sites, and unimpeded operation of NYS Parks, the Owner's Representative, and the Contractor facilities for the duration of this Agreement.

SECTION 7.2 DISCHARGE FOR VIOLATION

A Contractor may discharge any employee violating Section 1, above, and any such employee will not be eligible thereafter for referral under this Agreement for a period of 100 working days.

SECTION 7.3 NOTIFICATION

If a Contractor contends that any Union has violated this Article, it shall notify the WBTC of the Local Union involved, with copies of the notification to the Local Union. The WBTC and the Local Union shall instruct, order and otherwise use its best efforts to cause the employee(s) to immediately cease and desist from any violation of this Article. The Council shall not be liable for the unauthorized acts of a Local Union or its members. Similarly, a Local Union and its members shall not be liable for any unauthorized acts of its members, the Council, or another Local Union, to the extent allowed by law.

SECTION 7.4 EXPEDITED ARBITRATION

Any Contractor or Union alleging a violation of Section 7.1 of this Article may utilize the expedited procedure set forth below (in lieu of, or in addition to, any actions at law or equity) that may be brought.

A. A party invoking this procedure shall notify Robert Rabin, Jeffrey Selchick, Tom Hines (individuals recognized by both Local Unions and by the NYS Parks as experienced and impartial arbitrators) who shall alternate as Arbitrator under this expedited arbitration procedure. If the Arbitrator next on the list is not available to hear the matter within 48 hours of notice, the next

Arbitrator on the list shall be called. Copies of such notification shall be simultaneously sent to the alleged violator and, if a Local Union is alleged to be in violation, the WBTC, and the Contractor.

B. The Arbitrator shall thereupon, after notice as to time and place to the Contractor, the Local Union involved, the Council, the OR and NYS PARKS, hold a hearing within 48 hours of receipt (excluding Sundays and holidays) of the notice invoking the procedure if it is contended that the violation still exists. The hearing shall not, however, be scheduled for less than 24 hours (excluding Sundays and holidays) after the notice required by Section 7.3, above.

C. All notices pursuant to this Article may be by telephone, telegraph, hand delivery, or fax, confirmed by overnight delivery, to the Arbitrator, Contractor and Union involved. The hearing may be held on any day including Saturdays or Sundays. The hearing shall be completed in one session, which shall not exceed 8 hours duration (no more than 4 hours being allowed to either side to present their case and conduct their cross examination) unless otherwise agreed. A failure of any Union or Contractor to attend the hearing shall not delay the hearing of evidence by those present or the issuance of an award by the Arbitrator.

D. The sole issue at the hearing shall be whether a violation of Section 7.1, above, occurred. If a violation is found to have occurred, the Arbitrator shall issue a cease and Desist Award restraining such violation and serve copies on the Contractor and Union involved. The Arbitrator shall have no authority to consider any matter in justification, explanation or mitigation of such violation or to award damages, which issue is reserved solely for court proceedings, if any. The Award shall be issued in writing within 3 hours after the close of the hearing and may be issued without an Opinion. If any involved party desires an Opinion, one shall be issued within 15 calendar days, but its issuance shall not delay compliance with, or enforcement of, the Award.

E. NYS Parks and the OR (or such other designee of the Owner) may participate in full in all proceedings under this Article.

F. An Award issued under this procedure may be enforced by any court of competent jurisdiction upon the filing of this Agreement together with the Award. Notice of the filing of such enforcement proceedings shall be given to the Union and Contractor involved. In any court proceeding to obtain a temporary or preliminary order enforcing the arbitrator's Award as issued under this expedited procedure, the involved Union and Contractor waive their right to a hearing and agree that such proceedings may be ex parte, provided notice is given to opposing counsel. Such agreement does not waive any party's right to participate in a hearing for a final court order of enforcement or in any contempt proceeding.

G. Any rights created by statute or law governing arbitration proceedings which are inconsistent with the procedure set forth in this Article, or which interfere with compliance thereto, are hereby waived by the Contractors and Unions to whom they accrue.

H. The fees and expenses of the Arbitrator shall be equally divided between the involved Contractor and Union.

SECTION 7.5 ARBITRATION OF DISCHARGES FOR VIOLATION

Procedures contained in Article 9 shall not be applicable to any alleged violation of this Article, with the single exception that an employee discharged for violation of Section 7.1, above, may have recourse to the procedures of Article 9 to determine only if the employee did, in fact, violate the provisions of Section 7.1 of this Article; but not for the purpose of modifying the discipline imposed where a violation is found to have occurred.

ARTICLE 8 - LABOR MANAGEMENT COMMITTEE

SECTION 8.1 SUBJECTS

The Project Labor Management Committee shall meet on a regular basis to: (1) promote harmonious relations among the Contractors and Unions; (2) enhance safety awareness, cost effectiveness and productivity of construction operations; (3) protect the public interest; (4) discuss matters relating to staffing and scheduling with safety and productivity as considerations; and (5) review Affirmative Action and equal employment opportunity matters pertaining to the Project.

SECTION 8.2 COMPOSITION

The Committee shall be comprised of three designees of the WBTC (all designees shall be local representatives) a representative of the Owner's Representative and two other representatives appointed by the NYS Parks. Representatives of the Local Unions and Contractors involved in the issues being discussed may participate. The Committee may elect its own chair. The Committee may conduct business through mutually agreed sub-committees.

SECTION 8.3 MINORITY- AND WOMEN-OWNED BUSINESS ENTERPRISES AND SERVICE-DISABLED VETERAN-OWNED BUSINESS RECRUITMENT

The Owner, Owner's Representative and Unions recognize the need to promote opportunities for local MBE, WBE, and SDVOB contractors and subcontractors and will strive to achieve an overall project goal consistent with Article 15a of the Executive Law of New York and consistent with the objectives of this project. The parties will confer through Labor/Management sub-committee to develop a qualified list of MBE/WBE/SDVOB contractors, develop community outreach and recruitment programs, informational recruitment seminars and other such activities as scheduled by the NYS Parks, or the OR as well as active individual Contractor outreach to encourage participation.

ARTICLE 9 - GRIEVANCE & ARBITRATION PROCEDURE

SECTION 9.1 CLOSE COOPERATION

This Agreement is intended to provide close cooperation between management and labor. Each of the Unions shall assign a local representative to this Project for the purpose of completing the construction of the Project economically, efficiently, continuously, and without interruptions, delays, or work stoppages.

SECTION 9.2 IMPORTANCE TO ALL PARTIES

The Contractors, Unions, and the employees, collectively and individually, realize the importance to all parties to maintain continuous and uninterrupted performance of the work of

the Project, and agree to resolve disputes in accordance with the grievance-arbitration provisions set forth in this Article.

SECTION 9.3 PROCEDURE

Any question involving an interpretation expressly related to this Agreement or dispute arising out of and during the term of this Agreement (other than trade jurisdictional disputes) shall be considered a grievance and subject to resolution under the following procedures:

Step 1:

(a) When any employee subject to the provisions of this Agreement feels he or she is aggrieved by a violation of this Agreement, he or she shall, through the Local Union business representative or job steward, within five (5) working days after the occurrence of the violation, give notice to the work site representative of the involved Contractor stating the provision(s) alleged to have been aggrieved. The business representative of the Local Union or the job steward and the work site representative of the involved Contractor, the PC, the Owner's Representative and NYS Parks, shall meet and endeavor to adjust the matter within three (3) working days after timely notice has been given. The representative of the involved Contractor shall keep the meeting minutes and shall respond to the Union representative in writing (copying the PC, OR and NYS Parks) at the conclusion of the meeting but no later than twenty-four (24) hours thereafter. If they fail to resolve the matter within the prescribed period, the grieving party, may, within forty-eight (48) hours thereafter, pursue Step 2 of the grievance procedure, provided the grievance is reduced to writing, setting forth the relevant information concerning the alleged grievance, including a short description thereof, the date on which the grievance occurred, and the provision(s) of the Agreement alleged to have been violated.

(b) Should the Local Union(s) or any Contractor have a dispute with the other party (excepting jurisdictional disputes) and, after conferring, a settlement is not reached within three (3) working days, the dispute may be reduced to writing and proceed to Step 2 in the same manner as outlined herein for the adjustment of an employee complaint.

Step 2:

The International Union Representative and the involved Contractor, shall meet within seven (7) working days of referral of a dispute to this second step to arrive at a satisfactory settlement thereof. Meeting minutes shall be kept by the Contractor. If the parties fail to reach an agreement, the dispute may be appealed in writing in accordance with the provision of Step 3 within seven (7) calendar days thereafter.

Step 3:

(a) If the grievance has been submitted but not resolved under Step 2, either party may request in writing within seven (7) calendar days thereafter, that the grievance be submitted to Robert Rabin, Jeffrey Selchick, or Tom Hines (individuals recognized by both Local Unions and by NYS Parks as experienced and impartial arbitrators) who shall act, alternately, as the Arbitrator under this procedure. The Labor Arbitration Rules of the American Arbitration Association shall govern the conduct of the arbitration hearing, at which all Step 2 participants shall be parties. The decision of the Arbitrator shall be final and binding on the involved Contractor, Local Union and employees and the fees and expenses of such arbitrations shall be borne equally by the involved Contractor and Local Union(s).

(b) Failure of the grieving party to adhere to the time limits herein shall render the grievance null and void. These time limits may be extended only by written consent of the involved Contractor and involved Local Union at the particular step where the extension is agreed

upon. The Arbitrator shall have authority to make decisions only on the issues presented to him and shall not have the authority to change, add to, delete or modify any provision of this Agreement.

SECTION 9.4 PARTICIPATION BY THE PC, OWNER'S REPRESENTATIVE AND NYS PARKS

The PC, Owner's Representative and NYS Parks shall be notified by the involved Contractor of all actions at Steps 2 and 3 and, at its election, may participate in full in all proceedings at these Steps, including Step 3 arbitration.

ARTICLE 10 - JURISDICTIONAL DISPUTES

SECTION 10.1 ASSIGNMENT

The assignment of the work shall be solely the responsibility of the Contractor performing the work involved, subject to the pre-job conference, the procedures set forth hereafter and such work assignments shall be in accordance with the Plan for the Settlement of Jurisdictional Disputes in the Construction Industry ("the Plan") or any successor Plan approved by the Building & Construction Trades Department, AFL-CIO, except as noted in 10.3 below in the event of a jurisdictional dispute.

SECTION 10.2 PRE-JOB CONFERENCE

Each Contractor or subcontractor of any tier shall conduct a pre-job conference with the Council prior to commencing work. Each Contractor or subcontractor of any tier shall contact the WBTC President to arrange an acceptable time and place to meet with representatives of the signatory unions prior to commencing work. The PC, Owner's Representative and the NYS Parks shall be advised in advance of all such conferences and may participate if they wish. A completed Letter of Assent Schedule B shall be submitted prior to the Pre-Job Conference meeting for any tier contractor.

The purpose of the pre-job conference shall be for the Council and signatory unions to gain an understanding of the Contractor's proposed work assignments, the standard work day and work week, the number of employees to be employed, and to confirm the method of referral, the applicable wage rates and fringe benefit contributions and any other matters in accordance with this Agreement.

In conjunction with the pre-job conference, each Contractor shall complete the attached Pre-Job Questionnaire form (Schedule C) identifying all Subcontractors and indicating what trades will be used to perform the Project work (proposed trade assignment). This form shall be submitted to the WBTC at least fourteen (14) days in advance of the commencement of work. If any Local Union(s) objects or disagrees to the Proposed Trade Assignment of either the Contractor or Subcontractor, the Local Union will state its objection and there shall be a good faith discussion among the Contractor or Subcontractor and the objecting Local Union and other affected Unions to resolve objections to the trade assignment. If no resolution is reached, any involved Local Union may submit their position in writing together with support documentation within seven (7) calendar days to the Contractor or Subcontractor with a copy to all affected Local Unions. The Contractor or Subcontractor will review all submitted supporting documentation regarding the Proposed Trade Assignments and will submit to the Contractor, the WBTC, and all affected Local Unions a "Final Trade Assignment" letter within fourteen (14) days calendar days of the pre-job meeting at which the Proposed Trade Assignments were made. Any unresolved disputes concerning trade assignments shall be handled in accordance with Section 10.1, 10.2, and 10.3 of

this Article in accordance with the present Plan established by the Building and Construction Trades Department.

SECTION 10.3 PROCEDURE FOR SETTLEMENT OF DISPUTES

All jurisdictional disputes on this Project involving Project Work shall be settled and adjusted according to the present Plan established by the Building and Construction Trades Department or any other plan or method of procedure that may be adopted in the future by the Building and Construction Trades Department provided however, that disputes concerning intra-trade assignments (assignments between trades within the same International Union) will be determined by the applicable International Union. Decisions rendered shall be final, binding and conclusive on the Contractors and Unions parties to this Agreement.

SECTION 10.4 NO INTERFERENCE WITH WORK

All jurisdictional disputes shall be resolved without the occurrence of any strike, work stoppage, or slow-down of any nature and the Contractor's assignment shall be adhered to until the dispute is resolved. Individuals violating this section shall be subject to immediate discharge, subject to the grievance provision contained herein.

SECTION 10.5 AWARD

Jurisdictional award pursuant to this article shall be final and binding on the disputing Unions and the involved Contractor on this project only and may be enforced in any court of competent jurisdiction. Such award or resolution shall not establish a precedent on any other construction work not covered by this Agreement.

SECTION 10.6 LIMITATIONS

Awards made under this Article shall determine only to whom the disputed work belongs. The deciding person or group hereunder shall have no authority to (a) assign work to a double crew, that is, to more employees than the minimum required by the Contractor to perform the work involved; (b) assign the work to employees who are not qualified to perform the work involved; or (c) assign work being performed by non-union employees to union employees. This provision does not prohibit the establishment, with the agreement of the involved Contractor, of composite crews where more than one (1) employee is needed for the job.

ARTICLE 11- WAGES AND BENEFITS

SECTION 11.1 CLASSIFICATION AND BASE HOURLY RATE

All employees covered by this Agreement shall be classified in accordance with the work performed and paid the base, straight time hourly wage rates applicable for the respective job classifications specified in the attached Schedule A. The term "straight time" in this Agreement shall mean the hourly wage rate applicable for those classifications as required by the Schedule A. It is understood that under this Agreement all project work shall be subject to Building rate classifications where applicable trades contain a distinction.

SECTION 11.2 EMPLOYEE BENEFITS/SUPPLEMENTS

A. Unless expressly provided differently in this Agreement, Contractors agree to pay employee benefits/supplements on behalf of all of their employees covered by this

Agreement in the amounts required by the applicable Schedule A so long as they are consistent with New York State Labor Law Section 220 schedule in effect.

Except as provided below and in 11.2B, the Contractors agree that such payments shall be made to those established jointly trustee employee benefit funds designated in the Schedule A agreements, and in the amounts so designated. Bona fide jointly trustee fringe benefit plans established or negotiated through collective bargaining during the life of this Agreement may be added if they similarly fall within Section 220. Under no circumstances is a Contractor required to pay benefits except as required under Section 220 or otherwise explicitly required by this Agreement.

B. Notwithstanding Section 11.2A, Contractors who designate employees pursuant to Article 4.2 Section B, may satisfy the above benefit obligation with respect to those employees by: (i) providing those employees with coverage under their own bona fide private benefit plans, provided such plans satisfy the requirements of the Internal Revenue Code, (ii) by electing to pay into the applicable jointly held trustee funds designated on the Schedule A agreement on their behalf, or (iii) by paying the full amount of such benefit to the employee in employee's wages. When the benefit payments are paid into private plans, the payments to be made on behalf of those employees must equal the total supplement amount set forth at the Schedule A referred in Section 1, and must be consistent with the requirements of Section 220, and any shortfall must be paid to the employee in employee's wages.

The option for a private plan equivalent supplement shall not apply to contributions into Joint Apprentice Training Committee (JATC) or similar apprentice funds designated on Schedule A if the Contractor does not have an apprentice training program approved by the Department of Labor. Upon request by the Council, any contractor providing coverage to Article 4, Section 2.B. employees under private benefit plans will provide the Council with documentation of benefit payments made to individual employees during the term of their employment on the Project.

C. Contractors who exercise the option under Section 11.2.B of this Article to pay into their own private benefit plans rather than the applicable jointly trustee funds designated in the Schedule A agreements shall be responsible for and guarantee employee benefit/supplement payments and shall indemnify and hold harmless the jointly trustee funds designated in the Schedule A agreements against any and all benefit/supplement claims by its employees. Employees who exercise this option shall sign a waiver included as Schedule E. Contractors shall not be allowed to exercise the above-referenced option under Article 11, Section 2.B, unless and until a Schedule E waiver is executed by each employee exercising the option and such waiver is delivered to the Project Manager and the Council.

D. Contractors who contribute to jointly trustee funds under this Section agree to be bound by the written terms of the legally-established jointly trustee Trust Agreements specifying the detailed basis on which payments are to be paid into, and benefits paid out of, such Trust Funds but only with regard to work done on this Project and only for those employees for whom this Agreement requires such benefit Payments. Notwithstanding the foregoing, a Contractor's liability shall be at all times limited to the amount of contributions required to be made to the Trust Funds together with those damages as articulated in the trust agreements establishing said fringe benefit contribution plans and the Employee Retirement Income Security Act of 1974.

E. Each Contractor shall be responsible for and guarantee the payment of all required fringe benefits on the Project Site. Prior to the Owner's Representative confirming to NYS Parks a payment application by the PC is acceptable for Project Site work, the Owner's Representative will notify the applicable Union and any fund to which the PC or subcontractor is contributing that a payment application will be recommended for the PC or subcontractor. Notification, which may be by fax and email at the numbers and addresses provided by each union prior to the start of project work, which may be revised from time to time by giving notice to the other Party, will provide that the fund has 48 hours from the time the fax or email is sent in which to advise the Owner's Representative and the NYS Parks of any current contribution delinquencies for the PC or subcontractor. If written notice of such a delinquency is received by the Owner's Representative and the NYS Parks within that 48-hour period, the Owner's Representative shall recommend to NYS Parks that it withhold authorization for any payment due the PC or Subcontractor the amount of that delinquency, up to the total amount due the PC and/or subcontractor, until any dispute regarding the delinquency has been resolved, and NYS Parks shall withhold such payment. If notice of a delinquency is not received by the Owner's Representative and the NYS Parks within the required time periods, the Owner's Representative shall have no basis upon which to recommend withholding funds and the NYS Parks shall have no basis upon which to withhold, with respect to that delinquency, any part of a payment which is otherwise due.

F. The PC, in order to ensure the full and timely remittance of all union dues and fringe benefit funds, including but not limited to Health and Welfare, Pension, Annuity, Legal Service, Education and Training, SUB, Apprenticeship (hereinafter "Funds" or "Fund") due the affiliated Local Unions as provided for in all applicable Collective Bargaining Agreements between the Local Unions and Contractors which have contracted to perform Project Work, agrees that it will, upon written notification to the PC, the Owner's Representative and the NYS Parks of not more than thirty (30) days from the date of a default from any affiliated Local Union that a Contractor has become delinquent in the payment of Fund contributions due in connection with Project Work, shall withhold payment on all monies due or which may become due to the delinquent Contractor up to the amount alleged to be owed for the Project Work. The OR and NYS Parks shall take all appropriate actions to resolve the matter to the satisfaction of all Parties involved including payment of all such funds paid to the complaining Local Union in the form of a dual party check which would then be applied against the amount owed by the defaulting Contractor.

The defaulting Contractor shall be allowed a period of ten (10) working days from the date of notification to produce a written letter signed by the Business Manager of the complaining Local Union that the amount in default has been paid in full and the Contractor is current in the remittance of Funds or a bona-fide explanation acceptable to the complaining Local Union of why in the Contractor's opinion the amounts are not due as alleged. In the event of such a bona-fide dispute, The PC, Owner's Representative and the NYS PARKS will use its best efforts to resolve such matters and take action it deems appropriate.

No monies shall be paid to the delinquent Contractor, who may request arbitration of the dispute in accordance with Article 7. In the event such a letter is not delivered to the PC, Owner's Representative and NYS Parks within ten (10) working days from the date of notification to the defaulting Contractor, the PC, shall issue a two party check to the Fund Administrator of the complaining Local Union in the form of a dual party check which would then be applied against the amount owed by the defaulting Contractor.

G. For the purposes of notification under this Section, notification of a deficiency shall be forwarded to: *[insert name, address, email address of Prime Contractor and/or Owner's Representative]*

contacts].

ARTICLE 12 - HOURS OF WORK, PREMIUM PAYMENTS, SHIFTS AND HOLIDAYS

SECTION 12.1 WORK WEEK AND WORK DAY

A. The standard work week shall be a Five-Day Work Week: Monday - Friday; 5 days, 8 hours plus 1/2 hour unpaid lunch period each day consisting of 40 hours of work at straight time rates.

The Owner's Representative or NYS Parks, at its sole discretion, or another Contractor with the OR's recommendation and NYS Parks permission, may modify the work week to such other schedule including a Four-Day Work Week: Monday - Thursday, 4 days, 10 hours plus 1/2 hour unpaid lunch period each day as may be set by the OR or NYS PARKS and may change with notice in accordance with Article 12 Section 12.1 D below.

B. The Day Shift shall commence between the hours of 6:00 a.m. and 9:00 a.m. and shall end between the hours of 2:30 p.m. and 7:30 p.m. Starting and quitting times shall occur at the Project site as designated by the OR or NYS Parks or another Contractor with the OR's recommendation and NYS Parks approval.

C. Scheduling – The OR or NYS Parks, or another Contractor with the OR's approval, shall have the option of scheduling work day hours consistent with Project requirements, the Project schedule, and minimization of public inconvenience and NYS Parks operations. When conditions beyond the control of the Contractor, including but not limited to weather, power failure, fire or natural disaster, prevent the performance of Project work on a regularly scheduled work day, or when a holiday falls during a regularly scheduled work day and is not worked, the Contractor, with approval of the OR or NYS Parks, may schedule Saturday during that calendar week in which a workday was lost, at straight time pay (except that Sundays shall be two times the base rate); provided the employees involved have not otherwise worked more than 40 hours during that work week. In the event the employees involved have actually worked more than 40 hours during that work week they shall receive time and one-half pay for the hours worked in excess of 40. Provided the Union is able to refer sufficient workers to meet a Contractor's make-up needs, an individual employee shall not be penalized for an occasional inability to work a Saturday or Sunday make-up day.

D. Notice – Not less than 5 days prior notice shall be provided to the Local Union involved as to the work week and work hour schedules (including any changes in the work schedule) to be worked or such lesser notice as may be mutually agreed upon.

SECTION 12.2 OVERTIME/PREMIUM PAY

Subject to Section 12.1, overtime and/or premium pay for hours worked outside of the standard work week and work day, described in Section 12.1 A above, shall be paid in accordance with the applicable Schedule A agreement, except that overtime/premium pay shall not exceed 1 ½ times the regular rate except Sundays, which shall be paid at 2 times the base rate. There shall be no pyramiding of overtime/premium pay under any circumstances. The Contractor shall have the right to schedule work so as to minimize overtime. Holiday pay, if any, will be paid in accordance with Article 12, Section 12.4 below.

SECTION 12.3 SHIFTS

A. Flexible Schedules - Scheduling of shift work, including Saturday and

Sunday work, shall remain flexible in order to meet Project schedules and existing Project conditions including the minimization of interference with NYS Parks operations and public inconvenience. It is not necessary to work a day shift in order to schedule a second or third shift. Shifts must have prior approval of the Owner's Representative or NYS Parks, and must be scheduled with not less than five work days' notice to the Local Union.

B. Second/or Third Shifts & Saturday and Sunday Work - The second shift will start between 4:30 p.m. and 7:30 p.m. and the third shift will start after 7:30 p.m. and in each case shall be paid the lesser of a shift differential of 5%, or the differential required by the applicable Schedule A. There shall be no reduction in hours worked on a second and/or third shift, except that when 3 shifts are working together, the length of one or more shifts can be reduced to accommodate a 24 hour day and only actual hours worked will be paid. A designated "night shift" shall also paid the lesser of a shift differential of 5%, or the differential required by the applicable Schedule A

C. Flexible Starting Times - Shift starting times shall be adjusted by the Contractor, with approval of the Owner's Representative or NYS Parks, as necessary to fulfill Project requirements subject to the notice requirements of paragraph A. Special shifts can be created outside normal shift hours if necessary to facilitate construction and to minimize traffic congestion problems.

SECTION 12.4 HOLIDAYS

A. Schedule - There shall be 8 recognized holidays on the Project:

New Years Day	Labor Day
Presidents Day	Veterans Day
Memorial Day	Thanksgiving Day
Fourth of July	Christmas Day

All said holidays shall be observed on the dates designated by New York State Law. In the absence of such designation, they shall be observed on the calendar date except those holidays which occur on Sunday shall be observed on the following Monday.

B. Payment – Regular holiday pay, if any, for work performed on a recognized holiday shall be in accordance with the applicable Schedule A agreement. Premium pay for work performed on such a recognized holiday shall be in accordance with the applicable Schedule A.

C. Exclusivity - No holidays other than those listed in Section 12.4-A above shall be recognized or observed.

D. Whenever a paid holiday falls within a work week, which is defined for the purpose of this Section as commencing on Sunday and concluding on the following Saturday, then an Employee covered by this Agreement shall be paid for such holiday.

SECTION 12.5 MAKE-UP DAYS

When severe weather, power failure, fire or natural disaster or other similar circumstances beyond the control of the Contractor prevent work from being performed on a regularly scheduled weekday, the Contractor — so long as it is current in the remittance of all fringe benefit contributions owed to date — may, subject to Owner approval, schedule a Saturday make-up day and such time shall be scheduled and paid as if performed on a weekday. Any other Saturday work shall be paid at time and one-half (1 ½). In the event that the regular work schedule is four (4) 10-

hour work days, then Friday may be scheduled as a make-up day and such time shall be scheduled and paid as if performed on a week day. Any other Friday work shall be paid at time and one-half (1 ½). The Contractor shall notify the Local Union on the missed day or as soon thereafter as practicable if such a make-up day is to be worked. The refusal of any Local Union to honor a request for a make-up day due to the Contractor's failure to be current in the remittance of all fringe benefit contributions owed to date shall not be considered a work stoppage violation of the No Strike Provision of this Agreement. The crew of employees on a make-up day shall not exceed the average crew size employed during the work week and no employees shall be disciplined for refusing to work on a make-up day.

SECTION 12.6 REPORTING PAY

A. Employees who report to the work location pursuant to a regular schedule and who are not provided with work, for whatever reason, shall receive the greater of an allowance for travel costs equal to one (1) hour's pay. Employees who begin work and whose work is terminated early by a Contractor, for whatever reason, shall receive a minimum of one (1) hour's pay or pay for any hours actually worked, but not both. (Such payment is in lieu of any reporting or similar pay provided for in an applicable Schedule A agreement.) The allowance for travel costs is not to be considered as wages nor is it to be included in the calculation of benefits.

B. When an employee who has completed their scheduled shift and left the Project site is "called out" to perform special work of a casual, incidental or irregular nature, the employee shall receive pay for actual hours worked at applicable straight time or overtime rates in accordance with this Agreement but no less than a minimum guarantee of 1 hour, at the employee's straight time rate.

C. When an employee leaves the job or work location of their own volition or is discharged for cause or is not working as a result of the Contractor's invocation of Section 7 below, they shall be paid only for the actual time worked.

D. Except as specifically set forth in this Article there shall be no premiums, bonuses, hazardous duty (unless required under Section 220), high time or other special payments of any kind.

E. There shall be no pay for time not actually worked except as specifically set forth in this Article 12.

SECTION 12.7 PAYMENT OF WAGES

A. Payday - A statement shall be furnished with the payment of wages showing the Employer's name; the Employee's name; the Total Earnings, the Total Hours and itemized Tax Deductions and/or Withholdings. A payroll check shall be drawn upon a local Federal Deposit Insurance Corporation insured financial institution within the region where the project work is being performed, payable on demand at its identified value. The Employer may also pay electronically with transfer from a direct deposit fund so long as the Employee has a viable bank account in which to transfer funds and has requested same. All Employees shall be paid by 3:00 p.m. on Thursdays. In the event that the following Friday is a bank holiday, payroll shall be issued on Wednesday of that week. Not more than one week's wages shall be held back in any pay period.

B. Termination – Employees who are laid off shall be paid in full for that which is due them at the time of termination unless they have direct deposit, in which case the full amount due will be made according to the direct deposit schedule. The Contractor shall also provide the employee with a written explanation, setting forth the date and reason of layoff or discharge.

C. Checks that are not paid in accordance with sub-sections A and B will be assessed two (2) hours wages for each day late or the provision in the applicable Schedule A, whichever is less.

SECTION 12.8 EMERGENCY WORK SUSPENSION

A Contractor may, if considered necessary for the protection of life, property, and/or safety of employees or others, suspend all or a portion of Project work. In such instances, employees shall be paid for actual time worked; provided, however, that when a Contractor requests that employees remain at the job site available for work, employees shall be paid for "stand-by" time at their hourly rate of pay.

SECTION 12.9 INJURY/DISABILITY

An employee who, after commencing work, suffers a work-related injury or disability while performing work duties, shall receive no less than 8 hours wages for that day. Further, the employee shall be rehired at such time as the employee is able to return to duties provided there is still work available on the Project for which the employee is qualified and able to perform.

SECTION 12.10 TIME KEEPING

A Contractor may utilize systems to check employees in and out. Each employee must check in and out and sign a daily sign-in sheet, or other attendance protocol as directed in writing by the Project Owner. The Contractor will provide adequate facilities for checking in and out in an expeditious manner.

SECTION 12.11 MEAL PERIOD

A Contractor shall schedule an unpaid meal period of not more than 1/2 hour duration at the work location between the 3rd and 5th hour of the scheduled shift. A Contractor may, for efficiency of operation, establish a schedule which coordinates the meal periods of two or more crafts. If an employee is required to work through the meal period, the employee shall be compensated in a manner established in the applicable Schedule A agreement.

SECTION 12.12 BREAK PERIODS

There will be no rest periods or other nonworking time established during working hours other than those referenced in this Agreement. Individual beverage containers and lunch boxes will only be permitted in specified areas designated by the contractor and or the OR or NYS Parks. There will be no food or drink other than water allowed elsewhere.

ARTICLE 13 - APPRENTICES

SECTION 13.1 RATIOS

Recognizing the need to maintain continuing supportive programs designed to develop adequate numbers of competent workers in the construction industry and to provide craft entry opportunities for minorities, women and economically disadvantaged non-minority males, Contractors may employ apprentices in their respective crafts to perform such work as is within their capabilities and which is customarily performed by the craft in which they are indentured. Contractors may utilize apprentices and such other appropriate classifications in the maximum ratio

permitted by the New York State Department of Labor or the maximum allowed per trade, whichever is greater. The Council and its affiliate locals fully support the advancement of employment of all persons through registered apprenticeship programs in order to assist Contractors in fulfilling their obligations to promote employment opportunities for all classifications of persons

SECTION 13.2 DEPARTMENT OF LABOR

To assist the Contractors in attaining a maximum effort on this Project, the Unions agree to work in close cooperation with, and accept monitoring by, the New York State Department of Labor to ensure that minorities and women are afforded every opportunity to participate in apprenticeship programs which result in the placement of apprentices on this Project. To further ensure that this Contractor effort is attained, up to 50% of the apprentices placed on this Project may be first year, minority, women or economically disadvantaged apprentices. The Local Unions shall cooperate with Contractor requests for minority, women or economically disadvantaged referrals to meet this Contractor effort.

SECTION 13.3 HELMETS TO HARDHATS

The Contractors and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Contractors and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter "Center") and the Center's "Helmets to Hardhats" program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support networks, employment opportunities and other needs as identified by the parties.

The Unions and Contractors agree to coordinate with the Center to create and maintain an integrated database of veterans interested in working on the Project and of apprenticeship and employment opportunities for this Project. To the extent permitted by law, the Unions shall give credit to such veterans for bona fide, provable past experience.

ARTICLE 14 - SAFETY PROTECTION OF PERSON AND PROPERTY

SECTION 14.1 SAFETY REQUIREMENTS

Each Contractor will ensure that applicable OSHA mandated safety requirements are maintained at all times on the Project Site. The employees and Unions agree to cooperate fully with these efforts. Employees must perform their work at all times in a safe manner and protect themselves and the property of the NYS Parks, the Owner's Representative, and the Contractor from injury or harm. Failure to do so will be grounds for discipline, including termination. Prevention of accidents at the Project Site is the responsibility of the Contractors, its employees, subcontractors, suppliers, persons, and any other entity at the site. The Contractors will establish their own programs implementing safety measures, policies, and standards conforming to those required by OSHA and any project specific safety plan, whichever is stricter. The NYS Parks and the Owner's Representative are not responsible for identifying unsafe practices and NYS Parks or the Owner's Representative's failure to stop the Contractors' unsafe practices will not relieve the Contractor of the responsibility therefore.

SECTION 14.2 CONTRACTOR RULES

Employees covered by this Agreement shall at all times be bound by the reasonable safety, security, and visitor rules as established by the Contractors, the Owner's Representative or the NYS Parks for this Project. Such rules will be published and posted in conspicuous places throughout the Project and provided to the BCTC and the Local Unions. Any site rules that are new or vary from common industry standards shall be implemented only after notice to the Council and its affiliated Local Unions and an opportunity for negotiation and resolution by the Labor Management Committee has been undertaken. Specialized safety related training may be required to conduct work in or around the Project work zones. Such specialized training shall be at the expense of the Contractor if so required to complete the work.

SECTION 14.3 INSPECTIONS

NYS Parks, the Owner's Representative, and the Contractors retain the right to inspect incoming shipments of equipment, apparatus, machinery and construction materials of every kind.

ARTICLE 15 - NO DISCRIMINATION

SECTION 15.1 COOPERATIVE EFFORTS

The Contractors and Unions agree that they shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, marital status, age, union or non-union status, real or perceived sexual orientation or any other status protected by law, in any manner prohibited by law or regulation. It is recognized that special procedures may be established by Contractors and Local Unions and the New York State Department of Labor for the training and employment of persons who have not previously qualified to be employed on construction projects of the type covered by this Agreement. The parties to this Agreement shall assist in such programs and agree to use their best efforts to ensure that the goals for female and minority employment are met on this Project. Nothing in this section shall be grievable.

SECTION 15.2 LANGUAGE OF AGREEMENT

The use of the masculine or feminine gender in this Agreement shall be construed as including both genders.

ARTICLE 16 - GENERAL TERMS

SECTION 16.1 PROJECT RULES

The PC, Owner's Representative, NYS Parks and/or other Contractors may establish from time to time such reasonable Project rules as are necessary for the good order of the Project. The PC, OR, NYS Parks and each Contractor shall make every effort to make the rules uniform across the project and shall review the rules in the Labor Management Committee prior to implementation. It is agreed that such rules may include pre-hire and post-hire alcohol and/or drug testing rules, including but not limited to post-accident testing, applicable to all covered employees, provided those rules utilize testing procedures and standards as contained in U.S. Department of Labor C.D.L. Regulations. These rules shall be explained at the pre-job conference (if then existing) and posted at the Project site and may be amended thereafter as necessary. Failure of an

employee to observe these rules and regulations shall be grounds for discipline, including discharge.

SECTION 16.2 TOOLS OF THE TRADE

The welding/cutting torch and chain fall are tools of the trade having jurisdiction over the work performed. Employees using these tools shall perform any of the work of the trade. There shall be no restrictions on the emergency use of any tools or equipment by any qualified employee or on the use of any tools or equipment for the performance of work within the employee's jurisdiction.

SECTION 16.3 SUPERVISION

Employees shall work under the supervision of the craft foreperson or general foreperson.

SECTION 16.4 TRAVEL ALLOWANCES

There shall be no payments for travel expenses, travel time, parking, subsistence allowance or other such reimbursements or special pay except as expressly set forth in this Agreement.

SECTION 16.5 FULL WORKDAY

Employees shall be at their work area at the starting time established by the Contractor. The signatories reaffirm their policy of a fair day's work for a fair day's wage.

ARTICLE 17 – COOPERATION

To the fullest extent permitted by law, the parties intend for the provisions of this Agreement to control in the event of a conflict between this Agreement and any provision of New York State Labor Law. Towards that end, the Owner's Representative, Contractors and the Unions shall cooperate in seeking any NYS Department of Labor approvals that may be required for implementation of any terms of this Agreement.

ARTICLE 18 - SAVINGS AND SEPARABILITY

SECTION 18.1 THIS AGREEMENT

In the event that the application of any provision of this Agreement is enjoined, on either an interlocutory or permanent basis, or otherwise found in violation of law, the provision involved shall be rendered, temporarily or permanently, null and void. In such an event, the remainder of the Agreement shall remain in full force and effect, to the extent allowed by law, for contracts already bid and/or awarded and still in construction provided the Contractor then voluntarily accepts the Agreement. The parties to this Agreement shall enter into negotiations for a substitute provision in conformity with the law and the intent of the parties for contracts to be let in the future.

SECTION 18.2 THE BID SPECIFICATIONS

In the event that any action (including but not limited to the issuance of any bid specifications) taken by any Contractor requiring that a Contractor become bound to this

Agreement is enjoined, on either an interlocutory or permanent basis, or otherwise found in violation of law, then such action, and with it Article 2, Section 6, shall be rendered, temporarily or permanently, null and void. In such an event, this Agreement shall remain in full force and effect to the extent allowed by law for contracts already bid and/or awarded and still in construction provided the Contractor then voluntarily accepts the Agreement. The parties shall enter into negotiations as to modifications to the Agreement to reflect the court action taken and the intent of the parties for contracts to be let in the future.

SECTION 18.3 NON-LIABILITY

In the event of an occurrence referenced in Section 18.1 or Section 18.2 of this Article, neither NYS Parks, the Owner's Representative, any Contractor, nor any signatory Union shall be liable under this Agreement or otherwise, directly or indirectly, for any action taken, or not taken, in order to comply with any court order, injunction or determination. All action taken shall be in conformance with court orders then in effect and no retroactive payments or other retroactive action shall be required if the original court determination is reversed. Contracts shall be awarded on the basis of the specification or other requirements issued unless that specification/requirements have been enjoined or otherwise ruled unlawful, in which case the award, if any, shall be in accordance with any applicable court order.

SECTION 18.4 NON-WAIVER

Nothing in this Article shall be construed as waiving the prohibitions of Article 7 as to signatory Contractors and signatory Unions, nor shall be construed as a waiver by any Union(s) of any prevailing wage determination or schedule that is applicable to their trade for any public work that has been or may be performed in the future on any work outside the scope of this Agreement. Nothing contained in this Agreement is intended to be or shall be construed as a waiver by any Union(s) of any more favorable term or condition of employment that may be contained in any collective bargaining agreement applicable to work outside the scope of this Agreement.

ARTICLE 19 - FUTURE CHANGES IN SCHEDULE A AREA CONTRACTS

SECTION 19.1 CHANGES TO AREA CONTRACTS

Each Schedule A Agreement identified herein and made a part hereof, shall continue in full force and effect until the Contractor and/or Union parties to the Area Collective Bargaining Agreements which are the basis for the Schedule A notify the Owner and General Contractor in writing of the agreed upon changes in those agreements which are applicable to the Project, and their effective dates. Such changes shall only be effective to the extent consistent with this Agreement. Any disagreement between signatories to this Agreement over the incorporation into Schedule A of provisions agreed upon in the renegotiation of Area Collective Bargaining Agreements shall be resolved in accordance with the procedure set forth in Article 9 of this Agreement.

SECTION 19.2 LABOR DISPUTES DURING AREA CONTRACT NEGOTIATIONS

The Unions agree that there shall be no strikes, work stoppages, sympathy actions, picketing, bannering, slowdowns or other disruptive activity or other violations of Article 7 affecting the Project by any Local Union involved in the renegotiation of Area Local Collective Bargaining Agreements nor shall there be any lock-out on this Project affecting a Local Union

during the course of such renegotiations.

ARTICLE 20 - WORKERS' COMPENSATION ADR

At the written option of NYS Parks or its Owner's Representative and with the written approval of the Building and Construction Trades Council of Westchester and Putnam Counties, New York, all Local Unions, Contractors and Subcontractors working on this project agree to be bound by the Collectively Bargained Workers Compensation Alternative Dispute Resolution Agreement [ADR Agreement] and to the ADR program set forth therein, by and between the Building and Construction Trades Council of Westchester and Putnam Counties (WBTC), New York, and the Construction Industry Council entered into on February 17, 2022. An affiliate can elect to opt out of the ADR program at any time prior to the signing of the PLA (Article 20 - ADR) by the WBTC and/or the employer or the employer association.

ARTICLE 21 - CLEAN UP

A clean work site results in a safe and more productive job site. All cleanup during construction shall be performed by the trade having jurisdiction for cleanup in accordance with the Project contract documents. The Owner will ensure a clean and safe workplace. The Owner or Owner's Representative may back charge Contractors accordingly if cleanup becomes unsatisfactory. Once construction is complete and a building, section or floor is turned over to a professional cleaning company for final cleaning, including but not limited to, windows and floor prep, up to 33.3% of the employees may be a direct employee of the cleaning company. Those direct employees shall be exempt from this Agreement.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed and effective as of the ____ day of _____, 2024.

For: The Prime Contractor

BY: _____ Title: _____

FOR THE BUILDING & CONSTRUCTION TRADES

BUILDING AND CONSTRUCTION TRADES COUNCIL OF WESTCHESTER AND
PUTNAM COUNTIES

By: Jeff Loughlin
Jeff Loughlin, President
Jeff Loughlin (Aug 5, 2024 07:03 EDT)

By: Edward P. Cooke
Edward Cooke, Vice President

By: Anthony Ascencao
Anthony Ascencao, Treasurer
Anthony Ascencao (Aug 5, 2024 07:07 EDT)

FOR THE LOCAL AFFILIATES APPROVAL

Local One International Union of Elevator Constructors
of New York and New Jersey, AFL-CIO

By: Lenny Legotte
Lenny Legotte (Aug 17, 2024 11:21 EDT)
Name: Lenny Legotte
Title: President / Business Manager

International Brotherhood of Electrical Workers Local No. 3

By: Christopher Erikson
Name: Christopher Erikson
Title: Business Manager

Bricklayers and Allied Craftworkers Local 1 NY

By: _____
Name: P 28 C
Title: _____

Tile, Marble & Terrazzo Bricklayers and Allied Craftsmen
Local Union No. 7 of New York & New Jersey

By: Patrick Bonici
Patrick Bonici (Aug 8, 2024 07:44 EDT)
Name: Patrick Bonici
Title: Business Agent

United Union of Roofers, Waterproofers and Allied
Workers Local No. 8, New York

By: Nick Siciliano
N.Siciliano (Aug 12, 2024 16:23 EDT)
Name: Nick Siciliano
Title: Business Manager

District Council 9 International Brotherhood
of Painters and Allied Trades, AFL-CIO

By: _____
Name: P 28 B
Title: _____

International Union of Operating Engineers Local 15D

By: OLL
Tony LaRosa (Aug 8, 2024 08:49 EDT)
Name: Tony LaRosa
Title: Business Representative

Plumbers & Steamfitters Local 21

By: _____
Name: P 28 A
Title: _____

International Union of Operating Engineers Local 30

By: _____
Name: P 28 D
Title: _____

FOR THE LOCAL AFFILIATES APPROVAL

Local One International Union of Elevator Constructors
of New York and New Jersey, AFL-CIO

By: _____
Name: _____
Title: _____

International Brotherhood of Electrical Workers Local No. 3

By: _____
Name: _____
Title: _____

Bricklayers and Allied Craftworkers Local 1 NY

By: _____
Name: _____
Title: _____

Tile, Marble & Terrazzo Bricklayers and Allied Craftsmen
Local Union No. 7 of New York & New Jersey

By: _____
Name: _____
Title: _____

United Union of Roofers, Waterproofers and Allied
Workers Local No. 8, New York

By: _____
Name: _____
Title: _____

District Council 9 International Brotherhood
of Painters and Allied Trades, AFL-CIO

By: _____
Name: _____
Title: _____

International Union of Operating Engineers Local 15D

By: _____
Name: _____
Title: _____

Plumbers & Steamfitters Local 21

By: Tom O'Brien
Tom O'Brien (Aug 7, 2024 18:08 EDT)
Name: Thomas O'Brien
Title: Business Manager

International Union of Operating Engineers Local 30

By: _____
Name: _____
Title: _____

FOR THE LOCAL AFFILIATES APPROVAL

Local One International Union of Elevator Constructors
of New York and New Jersey, AFL-CIO

By: _____
Name: _____
Title: _____

International Brotherhood of Electrical Workers Local No. 3

By: _____
Name: _____
Title: _____

Bricklayers and Allied Craftworkers Local 1 NY

By: _____
Name: _____
Title: _____

Tile, Marble & Terrazzo Bricklayers and Allied Craftsmen
Local Union No. 7 of New York & New Jersey

By: _____
Name: _____
Title: _____

United Union of Roofers, Waterproofers and Allied
Workers Local No. 8, New York

By: _____
Name: _____
Title: _____

District Council 9 International Brotherhood
of Painters and Allied Trades, AFL-CIO

By: _____
Name: _____
Title: _____

Joseph Azzopardi

Business Manager/Secretary Treasurer - DC9

International Union of Operating Engineers Local 15D

By: _____
Name: _____
Title: _____

Plumbers & Steamfitters Local 21

By: _____
Name: _____
Title: _____

International Union of Operating Engineers Local 30

By: _____
Name: _____
Title: _____

FOR THE LOCAL AFFILIATES APPROVAL

Local One International Union of Elevator Constructors
of New York and New Jersey, AFL-CIO

By: _____
Name: _____
Title: _____

International Brotherhood of Electrical Workers Local No. 3

By: _____
Name: _____
Title: _____

Bricklayers and Allied Craftworkers Local 1 NY

By: John Argento
Name: _____
Title: President

Tile, Marble & Terrazzo Bricklayers and Allied Craftsmen
Local Union No. 7 of New York & New Jersey

By: _____
Name: _____
Title: _____

United Union of Roofers, Waterproofers and Allied
Workers Local No. 8, New York

By: _____
Name: _____
Title: _____

District Council 9 International Brotherhood
of Painters and Allied Trades, AFL-CIO

By: _____
Name: _____
Title: _____

International Union of Operating Engineers Local 15D

By: _____
Name: _____
Title: _____

Plumbers & Steamfitters Local 21

By: _____
Name: _____
Title: _____

International Union of Operating Engineers Local 30

By: _____
Name: _____
Title: _____

FOR THE LOCAL AFFILIATES APPROVAL

Local One International Union of Elevator Constructors
of New York and New Jersey, AFL-CIO

By: _____
Name: _____
Title: _____

International Brotherhood of Electrical Workers Local No. 3

By: _____
Name: _____
Title: _____

Bricklayers and Allied Craftworkers Local 1 NY

By: _____
Name: _____
Title: _____

Tile, Marble & Terrazzo Bricklayers and Allied Craftsmen
Local Union No. 7 of New York & New Jersey

By: _____
Name: _____
Title: _____

United Union of Roofers, Waterproofers and Allied
Workers Local No. 8, New York

By: _____
Name: _____
Title: _____

District Council 9 International Brotherhood
of Painters and Allied Trades, AFL-CIO

By: _____
Name: _____
Title: _____

International Union of Operating Engineers Local 15D

By: _____
Name: _____
Title: _____

Plumbers & Steamfitters Local 21

By: _____
Name: _____
Title: _____

International Union of Operating Engineers Local 30

By: William Lynn
William Lynn (Aug 15, 2024 11:55 EDT)
Name: William Lynn
Title: Business Manager & Financial Secretary

Heavy Construction Laborers Local 60

By: Anthony Ascencio
Anthony Ascencio (Aug 8, 2024 06:58 EDT)
Name: Anthony Ascencio
Title: Business Manager

Sheet Metal Workers' Local Union 38

By: _____
Name: P. 29 A
Title: _____

Local Union No. 40 of the International Association of
Bridge, Structural and Ornamental Ironworkers

By: P 29 B
Name: _____
Title: _____

Metallic Lathers Union Local 46

By: _____
Name: P 29 A
Title: _____

Asbestos Workers Local 91 (International Association
of Heat and Frost Insulators and Asbestos Workers)

By: _____
Name: P 29 B
Title: _____

International Union of Operating Engineers Local 137

By: _____
Name: P 29 D
Title: _____

Sheet Metal Workers Local Union 137

By: _____
Name: P 29 E
Title: _____

Laborers International Union of North America,
Local No. 235

By: _____
Name: P. 29 A
Title: _____

Operative Plasterers and Cement Masons
International Association Local 262

By: _____
Name: P 29 C
Title: _____

North Atlantic States Regional Council
of Carpenters - Local 279

By: _____
Name: P 29 C
Title: _____

Sheet Metal Workers' Local Union 38

By: *Michael Colombo*
M Colombo (Aug 7, 2024 6:54 PDT)
Name: Michael Colombo
Title: Business manager

Local Union No. 40 of the International Association of
Bridge, Structural and Ornamental Ironworkers

By: _____
Name: _____
Title: _____

Metallic Lathers Union Local 46

By: *Michael Anderson*
Name: Michael Anderson
Title: Business Manager

Asbestos Workers Local 91 (International Association
of Heat and Frost Insulators and Asbestos Workers)

By: _____
Name: _____
Title: _____

International Union of Operating Engineers Local 137

By: _____
Name: _____
Title: _____

Sheet Metal Workers Local Union 137

By: _____
Name: _____
Title: _____

Laborers International Union of North America,
Local No. 235

By: *R.J. Merck*
R.J. Merck (Aug 8, 2024 10:10 PDT)
Name: _____
Title: _____

Operative Plasterers and Cement Masons
International Association Local 262

By: _____
Name: _____
Title: _____

North Atlantic States Regional Council
of Carpenters - Local 279

By: _____
Name: _____
Title: _____

International Brotherhood of Electrical Workers

Sheet Metal Workers' Local Union 38

By: _____
Name: _____
Title: _____

Local Union No. 40 of the International Association of
Bridge, Structural and Ornamental Ironworkers

By: *Danny Doyle*
Danny Doyle (Aug 14, 2024 06:46 EDT)
Name: Daniel D Doyle
Title: Business manager

Metallic Lathers Union Local 46

By: _____
Name: _____
Title: _____

Asbestos Workers Local 91 (International Association
of Heat and Frost Insulators and Asbestos Workers)

By: *Thomas LeCount*
Thomas LeCount (Aug 7, 2024 14:08 EDT)
Name: thomas lecount
Title: Business Manager

International Union of Operating Engineers Local 137

By: _____
Name: _____
Title: _____

Sheet Metal Workers Local Union 137

By: _____
Name: _____
Title: _____

Laborers International Union of North America,
Local No. 235

By: _____
Name: _____
Title: _____

Operative Plasterers and Cement Masons
International Association Local 262

By: _____
Name: _____
Title: _____

North Atlantic States Regional Council
of Carpenters - Local 279

By: _____
Name: _____
Title: _____

International Brotherhood of Electrical Workers

Sheet Metal Workers' Local Union 38

By: _____
Name: _____
Title: _____

Local Union No. 40 of the International Association of
Bridge, Structural and Ornamental Ironworkers

By: _____
Name: _____
Title: _____

Metallic Lathers Union Local 46

By: _____
Name: _____
Title: _____

Asbestos Workers Local 91 (International Association
of Heat and Frost Insulators and Asbestos Workers)

By: _____
Name: _____
Title: _____

International Union of Operating Engineers Local 137

By: _____
Name: _____
Title: _____

Sheet Metal Workers Local Union 137

By: _____
Name: _____
Title: _____

Laborers International Union of North America,
Local No. 235

By: _____
Name: _____
Title: _____

Operative Plasterers and Cement Masons
International Association Local 262

By: Dale Alleyne
Name: Dale Alleyne
Title: Business Manager

North Atlantic States Regional Council
of Carpenters - Local 279

By: _____
Name: _____
Title: _____

International Brotherhood of Electrical Workers

Sheet Metal Workers' Local Union 38

By: _____
Name: _____
Title: _____

Local Union No. 40 of the International Association of
Bridge, Structural and Ornamental Ironworkers

By: _____
Name: _____
Title: _____

Metallic Lathers Union Local 46

By: _____
Name: _____
Title: _____

Asbestos Workers Local 91 (International Association
of Heat and Frost Insulators and Asbestos Workers)

By: _____
Name: _____
Title: _____

International Union of Operating Engineers Local 137

By: Jeff Loughlin
Jeff Loughlin (Aug 8, 2024 07:44 EDT)
Name: _____
Title: _____

Sheet Metal Workers Local Union 137

By: _____
Name: _____
Title: _____

Laborers International Union of North America,
Local No. 235

By: _____
Name: _____
Title: _____

Operative Plasterers and Cement Masons
International Association Local 262

By: _____
Name: _____
Title: _____

North Atlantic States Regional Council
of Carpenters - Local 279

By: Scott J Smith
Name: Scott J Smith
Title: Business Manager

International Brotherhood of Electrical Workers

International Union of Operating Engineers Local 30

By: _____
Name: _____
Title: _____

Sheet Metal Workers' Local Union 38

By: _____
Name: _____
Title: _____

Local Union No. 40 of the International Association of
Bridge, Structural and Ornamental Ironworkers

By: _____
Name: _____
Title: _____

Metallic Lathers Union Local 46

By: _____
Name: _____
Title: _____

Heavy Construction Laborers Local 60

By: _____
Name: _____
Title: _____

Asbestos Workers Local 91 (International Association
of Heat and Frost Insulators and Asbestos Workers)

By: _____
Name: _____
Title: _____

International Union of Operating Engineers Local 137

By: _____
Name: _____
Title: _____

Sheet Metal Workers Local Union 137

By: Anthony Fotiadis
Name: Anthony Fotiadis
Title: Assistant Business Manager

"Signs & Graphics"

Stone Derrickmen and Riggers Local Union No. 197

By: _____
Name: _____
Title: _____

Local Union 363

By: _____
Name: P 30 E
Title: _____

Teamsters Local 456

By: _____
Name: P 30 F
Title: _____

Ornamental Ironworkers Local Union No. 580

By: _____
Name: P 30 B
Title: _____

Road Sprinkler Fitters Local 669

By: _____
Name: P 30 E
Title: _____

NYCDCC Millwright and Machinery Erectors
Local Union No. 740

By: _____
Name: P 30 A
Title: _____

Teamsters Local 813

By: _____
Name: P 30 C
Title: _____

Glaziers Local 1087

By: _____
Name: P 30 D
Title: _____

NYCDCC Resilient Floor Coverers Local 2287

By: _____
Name: P 30 A
Title: _____

Iron Workers District Council of Greater
New York and Vicinity

By: _____
Name: P 30 A
Title: _____

United Cement Masons Union of Greater New York and Long Island Local 780

By: Michael Rendina
Michael Rendina (Aug 9, 2024 10:09 EDT)
Name: Michael Rendina
Title: Business Manager

Local Union 363

By: _____
Name: _____
Title: _____

Teamsters Local 456

By: _____
Name: _____
Title: _____

Ornamental Ironworkers Local Union No. 580

By: _____
Name: _____
Title: _____

Road Sprinkler Fitters Local 669

By: _____
Name: _____
Title: _____

NYCDCC Millwright and Machinery Erectors

Local Union No. 740

By: Joseph Geiger
Joseph Geiger (Aug 13, 2024 14:50 EDT)
Name: Joseph Geiger
Title: EST

Teamsters Local 813

By: _____
Name: _____
Title: _____

Glaziers Local 1087

By: _____
Name: _____
Title: _____

NYCDCC Resilient Floor Coverers Local 2287

By: Joseph Geiger
Joseph Geiger (Aug 13, 2024 14:50 EDT)
Name: Joseph Geiger
Title: EST

Iron Workers District Council of Greater

New York and Vicinity

By: Joseph Geiger
Joseph Geiger (Aug 13, 2024 14:50 EDT)
Name: Joseph Geiger
Title: EST

Local Union 363

By: _____
Name: _____
Title: _____

Teamsters Local 456

By: _____
Name: _____
Title: _____

Ornamental Ironworkers Local Union No. 580

By: James Nolan
James Nolan (Aug 7, 2024 12:01 EDT)
Name: joseph nolan
Title: business manager local 580

Road Sprinkler Fitters Local 669

By: _____
Name: _____
Title: _____

NYCDCC Millwright and Machinery Erectors
Local Union No. 740

By: _____
Name: _____
Title: _____

Teamsters Local 813

By: _____
Name: _____
Title: _____

Glaziers Local 1087

By: _____
Name: _____
Title: _____

NYCDCC Resilient Floor Coverers Local 2287

By: _____
Name: _____
Title: _____

Iron Workers District Council of Greater
New York and Vicinity

By: _____
Name: _____
Title: _____

Local Union 363

By: _____
Name: _____
Title: _____

Teamsters Local 456

By: _____
Name: _____
Title: _____

Ornamental Ironworkers Local Union No. 580

By: _____
Name: _____
Title: _____

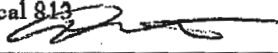
Road Sprinkler Fitters Local 669

By: _____
Name: _____
Title: _____

NYCDCC Millwright and Machinery Erectors
Local Union No. 740

By: _____
Name: _____
Title: _____

Teamsters Local 813

By: 
Name: **Daniel L. Wright**
Title: **PRESIDENT**

Glaziers Local 1087

By: _____
Name: _____
Title: _____

NYCDCC Resilient Floor Coverers Local 2287

By: _____
Name: _____
Title: _____

Iron Workers District Council of Greater
New York and Vicinity

By: _____
Name: _____
Title: _____

Local Union 363

By: _____
Name: _____
Title: _____

Teamsters Local 456

By: _____
Name: _____
Title: _____

Ornamental Ironworkers Local Union No. 580

By: _____
Name: _____
Title: _____

Road Sprinkler Fitters Local 669

By: _____
Name: _____
Title: _____

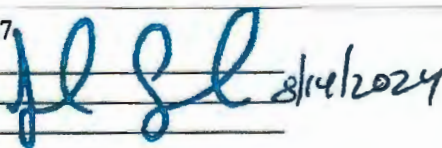
NYCDCC Millwright and Machinery Erectors
Local Union No. 740

By: _____
Name: _____
Title: _____

Teamsters Local 813

By: _____
Name: _____
Title: _____

Glaziers Local 1087

By:  8/14/2024
Name: _____
Title: _____

Joseph Azzopardi
Business Manager/Secretary Treasurer

NYCDCC Resilient Floor Coverers Local 2287

By: _____
Name: _____
Title: _____

Iron Workers District Council of Greater
New York and Vicinity

By: _____
Name: _____
Title: _____

Local Union 363

By: 
Name: Sam Fratto
Title: Business Manager

Teamsters Local 456

By: _____
Name: _____
Title: _____

Ornamental Ironworkers Local Union No. 580

By: _____
Name: _____
Title: _____

Road Sprinkler Fitters Local 669

By: 
Name: Kenneth Lilley Jr.
Title: Business Agent

NYCDCC Millwright and Machinery Erectors
Local Union No. 740

By: _____
Name: _____
Title: _____

Teamsters Local 813

By: _____
Name: _____
Title: _____

Glaziers Local 1087

By: _____
Name: _____
Title: _____

NYCDCC Resilient Floor Coverers Local 2287

By: _____
Name: _____
Title: _____

Iron Workers District Council of Greater
New York and Vicinity

By: _____
Name: _____
Title: _____

Local Union 363

By: _____
Name: _____
Title: _____

Teamsters Local 456

By: Louis A. Picani
Name: Louis A. Picani
Title: President and Principal Officer

Ornamental Ironworkers Local Union No. 580

By: _____
Name: _____
Title: _____

Road Sprinkler Fitters Local 669

By: _____
Name: _____
Title: _____

NYCDCC Millwright and Machinery Erectors
Local Union No. 740

By: _____
Name: _____
Title: _____

Teamsters Local 813

By: _____
Name: _____
Title: _____

Glaziers Local 1087

By: _____
Name: _____
Title: _____

NYCDCC Resilient Floor Coverers Local 2287

By: _____
Name: _____
Title: _____

Iron Workers District Council of Greater
New York and Vicinity

By: _____
Name: _____
Title: _____

SCHEDULE A - LOCAL COLLECTIVE BARGAINING AGREEMENTS

1. Local One International Union of Elevator Constructors of New York and New Jersey, AFL-CIO
2. International Brotherhood of Electrical Workers Local No. 3
3. Boilermakers Local 5
4. Bricklayers and Allied Craftworkers Local 1 NY
5. Tile, Marble & Terrazzo Bricklayers and Allied Craftsmen Local Union No. 7 of New York & New Jersey
6. United Union of Roofers, Waterproofers and Allied Workers Local No. 8, New York
7. District Council 9 International Brotherhood of Painters and Allied Trades, AFL-CIO
8. International Union of Operating Engineers Local 15D
9. Plumbers & Steamfitters Local 21
10. International Union of Operating Engineers Local 30
11. Sheet Metal Workers' Local Union 38
12. Local Union No. 40 of the International Association of Bridge, Structural and Ornamental Iron Workers
13. Metallic Lathers Union Local 46
14. Heavy Construction Laborers Local 60
15. Asbestos Workers Local 91 (International Association of Heat and Frost Insulators and Asbestos Workers)
16. International Union of Operating Engineers Local 137
17. Sheet Metal Workers Local Union 137
18. Stone Derrickmen and Riggers Local Union No. 197
19. Laborers International Union of North America, Local No. 235
20. Operative Plasterers and Cement Masons International Association Local 262
21. North Atlantic States Regional Council of Carpenters - Local 279
22. International Brotherhood of Electrical Workers Local Union 363
23. Teamsters Local 456
24. Ornamental Ironworkers Local Union No. 580
25. Road Sprinkler Fitters Local 669
26. NYCDCC Millwright and Machinery Erectors Local Union No. 740
27. United Cement Masons Union of Greater New York and Long Island Local 780
28. Bridge Painters Local 806
29. Teamsters Local 813
30. Teamsters Local 814
31. Glaziers Local 1087
32. NYCDCC Dockbuilders Local Union 1556
33. NYCDCC Resilient Floor Coverers Local 2287
34. Iron Workers District Council of Greater New York and Vicinity

SCHEDULE B - LETTER OF ASSENT

On this ____ day of _____, 2023, the undersigned party confirms that it agrees to be a party to and be bound by the _____ Project Labor Agreement (hereinafter "Agreement" or "PLA") entered into between _____ and _____, and understands that such Agreement may, from time to time, be amended by the parties or interpreted pursuant to its terms. The terms of the Agreement and its Schedules are hereby incorporated by reference herein. The undersigned, as a Contractor or Subcontractor (hereinafter "Contractor") on the Project known as _____ and located at _____ (hereinafter "Project"), for and in consideration of the award to it of a contract to perform work on said Project, and in further consideration of the mutual promises made in the PLA, a copy of which was received and is acknowledged, hereby:

1. accepts and agrees to be bound by the terms and conditions of the Agreement, together with any and all schedules, amendments, and supplements now existing or which are later made thereto;
2. agrees to be bound by, and incorporates and adopts the legally established collective bargaining agreements ("Schedule A Agreements") and local fringe benefit trust funds agreements as referenced in the PLA and this letter of Assent for this Project consistent with Article 11 of this Agreement;
3. authorizes the parties to such local fringe benefit trust funds agreements to appoint trustees and successor trustees to administer the trust funds and hereby ratifies and accepts the trustees so appointed as if made by the Contractor consistent with Article 11 of this Agreement;
4. certifies that it has no commitments or agreements that would preclude its full and complete compliance with the terms and conditions of this Agreement. The Contractor agrees to employ labor that can work in harmony with all other labor on the Project and shall require labor harmony from every lower tier Subcontractor it engages to work on the Project. Labor harmony disputes and/or issues shall be subject to the Labor Management Committee's Pre-Job conference provisions;
5. agrees to secure from any Contractor(s) (as defined in the PLA) which is or becomes a Subcontractor (of any tier) on the Project, a duly executed Agreement to be bound in from identical to this document; and
6. agrees that it will not invoke the Most Favored Nations Clause that may be contained in any of its collective bargaining agreements with Council affiliated Local Unions as a result of the application of this PLA to this Project.

Name of Contractor or Subcontractor

By: _____
Authorized Officer & Title

Address

Telephone No./Email Address/Facsimile No.

Contractor's State License # _____

Employer EIN _____ Employer NYS IU _____ WC# _____

SCHEDULE C — ADMINISTRATION OF AGREEMENT & DESIGNEE

Name of Project: _____

The Prime Contractor or Owner shall name a Designee to administer this Agreement. The Designee shall be notified in the event any jurisdictional issue, grievance, or other matter concerning this PLA arises, and such Designee shall actively take part in the resolution of the issue. Any signatory Union may request the Designee's assistance in rectifying an issue.

The Designee's contact information is as follows:

_____ (Office Phone)

_____ (Cell Phone)

_____ (Email)

_____ (Signature)

_____ (Print)

Owner / Prime Contractor

SCHEDULE D - SIDE LETTER OF AGREEMENT

This Side Letter of Agreement shall be binding on all entities (Unions, Contractors and/or others) covered by the Project Labor Agreement (“PLA”) covering the Site and Building Enhancements at John Jay Homestead State Historic Site Project (the “Project”), entered into on the ____ day of _____, 2024, to the same extent as if incorporated therein.

This provision shall not be used if the resulting participation totally excludes or completely prevents a building trades craft discipline from participating in Project Work.

Notwithstanding Article 4, Section 4.2 of the PLA, or any provision of the PLA, and to the full extent permitted by law, subcontractors who have been identified in the Contractor’s approved Minority/Women/Service-Disabled Veteran-Owned Businesses (M/W/SDVOB) Utilization Plan and hold contracts for project work of less than \$1,000,000 may, with respect to the first 6 hires, request up to 50% of the employees covered by this agreement through the special procedures of Section 4.2 (B) beginning with one (1) hiring hall referral, followed by a two (2) named referrals, then one (1) hiring hall referral, then one (1) named referral. If more than 6 employees are required, manpower will be supplied at a ratio of 20%, meaning the 7th hire may be a named referral, and the 8th, 9th, 10th, and 11th, hires shall be hiring hall referrals, and so forth until the requirements for that trade are met. Subcontractors may utilize the procedures set forth in this Schedule D until the Project’s 15% MBE utilization goal and 15% WBE utilization goal and 6.5% SDVOB utilization goal has been achieved.

For purposes of applying this exemption to individual Subcontractors, the work of each building trade craft discipline shall be considered separately in striving for compliance with the Contractor’s approved Minority/Women/Service Disabled Veteran Owned Business Utilization Plan.

Any disputes arising under this Side Letter of Agreement are subject to Article 9 (Grievance and Arbitration Procedure) of the PLA, or procedures of Article 7 where applicable.

Signed this ____ Day of _____ 2024

For the Prime Contractor:

BY: _____ Title: _____

For the Building and Construction Trades Council of Westchester and Putnam Counties, New York, AFL-CIO:

BY: _____ Jeff Loughlin, President

By resolution _____, 2024 of the Building and Construction Trades Council of Westchester and Putnam Counties, New York, AFL-CIO authorizing President to sign this Side Letter of Agreement - Schedule D, attached hereto, on behalf of the local unions signatory to the PLA.

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Summary of and Implementation Guidelines for (139-J of the State Finance Law)

SUMMARY OF AND IMPLEMENTATION GUIDELINES FOR § 139-J OF THE STATE FINANCE LAW

* This summary is not intended to replace the need for persons to become familiar with the full requirements of the law. Please refer to the full text of the law to resolve any questions you may have with regard to your conduct under it.

Section 139-j of the State Finance Law imposes restrictions on the type of communications that a person may make to a governmental entity, such as the Office of Parks, Recreation and Historic Preservation (hereafter, referred as “OPRHP”), concerning a governmental procurement during a period of time which the law terms the “restricted period.” These new requirements cover a wide range of government contracting transactions, including, the purchase of a commodity, service, technology, public work, construction and revenue contract, or the purchase, sale or lease of real property or the acquisition or the granting of other interests in real property (hereafter referred as “governmental procurement or procurement contract.” Any person in the private sector (hereinafter referred to as “person”) interested in contacting OPRHP concerning anyone of these types of transactions is covered under the provisions of the new law, which limits the way that such person can communicate with OPRHP during the “restricted period”, which is defined broadly as the period of time commencing from the earliest written notice announcing a government procurement all the way until the award is approved by the comptroller.

For each governmental procurement OPRHP will designate an employee or employees that may be contacted by persons concerning all aspects of the governmental procurement. The law requires that each person that contacts (in writing, orally, or via email) OPRHP concerning a governmental procurement may only make what the law terms “permissible contacts”, which means that the person: 1) shall contact only the designated person or persons identified by OPRHP in the governmental procurement documents and 2) shall not attempt to influence the procurement in a manner that would result in violation of §73(5) of the Public Officers Law (Ethical Prohibitions on Gifts to Public Officers and Employees) or in a manner that would result in violation of §74 of the Public Officers Law (The Code of Ethics).

The law specifically permits certain types of contacts by persons to OPRHP concerning the governmental procurement. These are:

- the submission of written proposals in response to a request for proposal, invitation for bids or any other method for soliciting a response from interested parties;
- the submission of written questions to a designated contact, when all written questions and responses are to be disseminated to all persons interested in such procurement;
- participation in a conference where all interested parties are invited to attend;

- written complaints made to the General Counsel's Office of OPRHP concerning the timely response to issues posed to the designated person, provided that such written complaints are made part of the procurement record;
- communications where the contract award has been tentatively made and where such communications are necessary to negotiate the terms of the procurement contract;
- requests made to the designated person or persons to review the procurement award;
- written protests, appeals, or other review proceedings to either OPRHP or an outside agency.

All communications which are reasonably inferred by OPRHP to be intended to influence the governmental procurement process or the award of such procurement in violation of the law will be recorded and made a part of the procurement record, whether such communications are made to the designated employee/s or another employee of OPRHP. Contacts made to persons other than the designated OPRHP employee shall also be deemed an impermissible contact.

Any contact which is alleged to be an impermissible contact under the law will be immediately referred to and investigated by OPRHP's Ethics Officer. The Ethics Officer shall promptly investigate the allegation by interviewing all employees reasonably involved or who are believed to have information about the impermissible contact. If sufficient cause exists to believe that such allegation is true, the person being investigated shall be given notice that an investigation is ongoing and such person shall be afforded an opportunity to be heard in response to the allegation either by responding in writing or by providing a statement before the Ethics Officer, who shall record by appropriate means such statement for the record. The Ethics Officer shall keep a record of the investigation and shall make a written finding of the results of such investigation and report these findings to the Commissioner.

In addition, a finding by the Ethics Officer that a person has knowingly and willingly violated the law by making an impermissible contact shall result in a determination of non-responsibility and such person and all associated subsidiaries of such person shall not be awarded the procurement contract. The determination of non-responsibility shall also be forwarded to the Commissioner of the Office of General Services (or his or her designee), which by law is required to keep a list of such determinations for public inspection. Determinations of non-responsibility must be disclosed in all future responses to New York State procurements. With few exceptions, no procurement contract shall be awarded to any person who fails to disclose findings of non-responsibility within the previous four years.

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Sample Forms

Section 1 – Forms Provided to All Bidders

NYS Office of Parks, Recreation and Historic Preservation
Taconic Region

REQUEST FOR INFORMATION (RFI)
OPR-103

Project: Building & Site Enhancement Project at John Jay Homestead State Historic Site

Contract Number: D006292 GC

Request From: [Click here to enter Your Name .](#)

Reply Email Address: [Click here to enter Parks reply email.](#)

Email Request to : Amanda Tucker, Amanda.Tucker@parks.ny.gov

Request Number: [Click here to enter text.](#)

Date: [Click here to enter a date.](#)

Spec Section No.: [Click here to enter text.](#)

Drawing No: [Click here to enter text.](#)

Remarks:

Question: [Click here to enter text.](#)

Answer: [Click here to enter text.](#)

**NEW YORK STATE
OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION**

**SAMPLE AGREEMENT – PROVIDED HERE FOR INFORMATIONAL
PURPOSES ONLY**

This Agreement made by and between the State of New York, acting by and through the Office of Parks, Recreation and Historic Preservation, hereinafter referred to as the "Office" or the "State" and _____ hereinafter referred to as the "Contractor".

W I T N E S S E T H

1) The Contractor agrees to perform the Work in accordance with the Contract Document which is incorporated herein

**PROJECT NAME
STATE PARK
Contract # D00XXXX**

2) The Contractor agrees to complete the Work no later than **XXX days after contract is approved by the NYS Comptroller's Office.**

3) The Contractor agrees, in the event the Contractor fails to complete all the work on time, to pay the Office liquidated damages as per the General Conditions, Article 14.10, for each day of delay in the physical completion of the Work.

4) The Office agrees to pay the Contractor in accordance with the Contract Documents and in consideration of the completion of the Work, as follows:

IN WORDS:

IN NUMBERS:

5) Goals for the participation of minority group members and women on this project shall be in accordance to the approved utilization plan for this project.

CONTRACT SIGNATURE PAGE

PARKS certifies that copies of this signature page with original signatures will be attached to all other exact copies of the contract.

IN WITNESS WHEREOF, PARKS and the CONTRACTOR have executed this agreement on the date and year indicated.

NEW YORK STATE OFFICE OF PARKS,
RECREATION AND HISTORIC PRESERVATION

Date By: _____
Bevin Collins
Title: Deputy Commissioner for Capital Programs

Date CONTRACTOR
By: _____
(signature)

Name: _____
(print)

Title: _____
(print)

Federal ID Number: _____

Approved as to Form:

ATTORNEY GENERAL

Thomas P. DiNapoli
State Comptroller

By: _____

By: _____

Date: _____

Date: _____

- Contractor's signature must be notarized on the following page.

CONTRACTOR'S SIGNATURE MUST BE NOTARIZED. USE EITHER THE
INDIVIDUAL, PARTNERSHIP, OR CORPORATION FORM, AS APPROPRIATE

INDIVIDUAL

STATE OF NEW YORK)
) SS.:
COUNTY OF)

On this day of , 2021, before me personally came
 , to me known and known to me to be the person described in and who
executed the foregoing instrument, and he or she acknowledged to me that he or she
executed the same.

Notary Public

PARTNERSHIP

STATE OF NEW YORK)
) SS.:
COUNTY OF)

On this day of , 2021, before me personally came
 , to me known and known to me to be the person who executed the
above instrument, who, being duly sworn by me, did for himself or herself depose and
say that he or she is a member of the firm of , consisting of himself or
herself and , and that he or she executed the
foregoing instrument in the firm name
of , had authority to sign same, and did duly acknowledge
to me that he or she executed the same as the act and deed of said firm for the uses
and purposes mentioned therein.

Notary Public

CORPORATION

STATE OF NEW YORK)
) SS.:
COUNTY OF)

On this day of , 2021, before me personally came
 , to me known, who being by me duly sworn, did depose and say that
he or she is the of ,
the corporation described in and which executed the foregoing instrument; that he or
she has been duly authorized by the Board of Directors of said corporation to execute
the foregoing instrument on behalf of said corporation and that he or she signed his or
her name thereto by order of said corporation for the purposes and uses therein
described.

Notary Public

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Sample Forms

Section 2 – Forms For Use
by Low Bidder(s)

CONTRACT SUBMITTALS CHECKLIST

(PROVIDED IN THIS PROJECT MANUAL FOR ALL BIDDERS TO READ – ULTIMATELY THE SELECTED LOW BIDDER WILL HAVE TO MAKE THESE SUBMISSIONS)

It is very important that you adhere to the timelines for submittals as noted in Item 1

1. After the NYS Office of Parks, Recreation and Historic Preservation has issued the selected low bidder a Notice of Intent to Award Letter – the following submittals shall be completed and sent to the designated OPRHP contact **within 10 calendar days**:

- NYS Vendor Responsibility Questionnaire (CCA-2) – complete all sections
- **MWBE/SDVOB Utilization Plan – MWBE/SDVOB Utilization Plan must be approved by NYS OPRHP's Diversity Compliance Unit, prior to any other contract submissions on this project. Please adhere to the time submission listed above.**
- **New York State now requires all contractors/vendors who do business with or in New York State to be registered with the NY Office of the State Comptroller. If you are not currently registered, please complete the enclosed Substitute W-9 and mail immediately and directly to OSC.**
- 1 original scanned copy of the Agreement – signed and notarized. Notary acknowledgment date may be on (or after, if necessary) signature date.
- EEO Policy Statement (contracts over \$25,000)
- Certificate of Insurance, Workers Compensation Certificate and NYS Disability Benefit Certificate
- 1 original scanned copy of the Performance Bond – Contractor's signature and Surety's signature must be notarized, and each bond must have a separate original notary page. The construction date must match the agreement signature date, while the bond date and notary dates can be on or after the construction/agreement date. Bonds must include Surety's Financial Statement and Power of Attorney.
- 1 original scanned copy of the Labor and Material Bond – Contractor's signature and Surety's signature must be notarized, and each bond must have a separate original notary page. The construction date must match the agreement signature date, while the bond date and notary dates can be on or after the construction/agreement date. Bonds must include Surety's Financial Statement and Power of Attorney.

2. After the Contract has been approved by NYS OSC, the Contractor shall submit the following:

- Detailed Estimate
- Project Schedule
- Schedule of Submittals
- Summary of Subcontractors
- Submit a "Request for Information", form OPR-103, whenever a written clarification of an issue is required.

PAYMENT FORM CHECKLIST

- A. 1. With each monthly payment application, the contractor shall submit the following:
- First payment application must include copies of all 10 Hour OSHA Certification for all employees on certified payrolls, regardless if they are a prime contractor or subcontractors. Payment Application cannot be submitted for payment without certifications on file in the Regional Engineering Office.
 - Certified Payrolls
 - Once payment is received, MWBE/SDVOB payment audit must be completed in the NYS Contracting System.
2. Monthly payments shall be for all work completed in that month.
- B. With the final payment application, the contractor shall submit the following:
- Certified Payrolls
 - Contractor's Prevailing Rate Certification
 - Subcontractor's Prevailing Rate Certification
 - MWBE/SDVOB Final Payment Report, if applicable

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

You have selected the For-Profit Construction questionnaire, commonly known as the “CCA-2,” which may be printed and completed in this format or, **for your convenience, may be completed online using the [New York State VendRep System](#).**

COMPLETION & CERTIFICATION

The person(s) completing the questionnaire must be knowledgeable about the vendor’s business and operations. An owner or official must certify the questionnaire and the signature must be notarized.

NEW YORK STATE VENDOR IDENTIFICATION NUMBER (VENDOR ID)

The Vendor ID is a ten-digit identifier issued by New York State when the vendor is registered on the Statewide Vendor File. This number must now be included on the questionnaire. If the business entity has not obtained a Vendor ID, contact the OSC Help Desk at ciohelpdesk@osc.state.ny.us or call 866-370-4672.

DEFINITIONS

All underlined terms are defined in the “New York State Vendor Responsibility Definitions List,” found at <http://www.osc.state.ny.us/vendrep/documents/questionnaire/definitions.pdf>. These terms may not have their ordinary, common or traditional meanings. Each vendor is strongly encouraged to read the respective definitions for any and all underlined terms. By submitting this questionnaire, the vendor agrees to be bound by the terms as defined in the "New York State Vendor Responsibility Definitions List" existing at the time of certification.

RESPONSES

Every question must be answered. Each response must provide all relevant information which can be obtained within the limits of the law. However, information regarding a determination or finding made in error which was subsequently corrected or overturned, and/or was withdrawn by the issuing government entity, is not required. Individuals and Sole Proprietors may use a Social Security Number but are encouraged to obtain and use a federal Employer Identification Number (EIN).

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

BUSINESS ENTITY INFORMATION				
<u>Legal Business Name</u>		<u>EIN</u> _____		
Address of the <u>Principal Place of Business</u> (street, city, state, zip code)		<u>New York State Vendor Identification Number</u>		
		Telephone ext.		Fax
		Website		
Authorized Contact for this Questionnaire				
Name		Telephone ext.		Fax
Title		Email		
Additional <u>Business Entity</u> Identities: If applicable, list any other <u>DBA</u> , <u>Trade Name</u> , <u>Former Name</u> , Other Identity, or <u>EIN</u> used in the last five (5) years, the state or county where filed and the status (active or inactive).				
Type	Name	EIN	State or County where filed	Status

I. BUSINESS CHARACTERISTICS		
1.0 <u>Business Entity</u> Type – Check appropriate box and provide additional information:		
a) ☐ <u>Corporation</u> (including <u>PC</u>)	Date of Incorporation	
b) ☐ <u>Limited Liability Company</u> (LLC or PLLC)	Date Organized	
c) ☐ <u>Limited Liability Partnership</u>	Date of Registration	
d) ☐ <u>Limited Partnership</u>	Date Established	
e) ☐ <u>General Partnership</u>	Date Established	County (if formed in NYS)
f) ☐ <u>Sole Proprietor</u>	How many years in business?	
g) ☐ Other	Date Established	
If Other, explain:		
1.1 Was the <u>Business Entity</u> formed in New York State?		☐ Yes ☐ No
If “No,” indicate jurisdiction where the <u>Business Entity</u> was formed:		
☐ United States	State	
☐ Other	Country	

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

I. BUSINESS CHARACTERISTICS			
1.2 Is the <u>Legal Business Entity</u> publicly traded?			☐ Yes ☐ No
If "Yes," provide the <u>CIK code</u> or Ticker Symbol:			
1.3 Is the <u>Business Entity</u> currently <u>registered to do business in New York State</u> ? <i>Note: Select "Not Required" if the Business Entity is a Sole Proprietor or General Partnership</i>			☐ Yes ☐ No ☐ Not Required
If "No," explain why the <u>Business Entity</u> is not required to be <u>registered to do business in New York State</u> :			
1.4 Is the responding <u>Business Entity</u> a <u>Joint Venture</u> ? Note: If the submitting <u>Business Entity</u> is a <u>Joint Venture</u> , also submit a separate questionnaire for each <u>Business Entity</u> comprising the <u>Joint Venture</u> .			☐ Yes ☐ No
1.5 If the <u>Business Entity's Principal Place of Business</u> is not in New York State, does the <u>Business Entity</u> maintain an office in New York State? <i>(Select "N/A" if <u>Principal Place of Business</u> is in New York State.)</i>			☐ Yes ☐ No ☐ N/A
If "Yes," provide the address and telephone number for one office located in New York State.			
1.6 Is the Business Entity a New York State certified <u>Minority-Owned Business Enterprise</u> , or <u>Women-Owned Business Enterprise</u> , or <u>New York State Small Business</u> , or federally certified <u>Disadvantaged Business Enterprise</u> ?			☐ Yes ☐ No
If "Yes," check all that apply: ☐ New York State certified <u>Minority-Owned Business Enterprise</u> (MBE) ☐ New York State certified <u>Women-Owned Business Enterprise</u> (WBE) ☐ <u>New York State Small Business</u> ☐ Federally certified <u>Disadvantaged Business Enterprise</u> (DBE)			
1.7 Identify each person or business entity that is, or has been within the past five (5) years, <u>Principal Owner</u> of 5.0% or more of the firm's shares; a Business Entity Official; or one of the five largest shareholders, if applicable. <i>(Attach additional pages if necessary.)</i> <u>Joint Ventures</u> : Provide information for all firms involved.			
Name <i>(For each person, include middle initial)</i>	Title	Percentage of ownership (Enter 0%, if not applicable)	Employment status with the firm
			☐ Current ☐ Former
			☐ Current ☐ Former
			☐ Current ☐ Former
			☐ Current ☐ Former

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

II. AFFILIATE and JOINT VENTURE RELATIONSHIPS

2.0 Are there any other <u>construction</u> -related firms in which, now or in the past five years, the submitting <u>Business Entity</u> or any of the individuals or business entities listed in question 1.7 either owned or owns 5.0% or more of the shares of, or was or is one of the five largest shareholders or a director, officer, partner or proprietor of said other firm? <i>(Attach additional pages if necessary.)</i>	☐ Yes ☐ No

Firm/Company Name	Firm/Company EIN (If available)	Firm/Company's Primary Business Activity

Firm/Company Address

Explain relationship with the firm and indicate percent of ownership, if applicable (enter N/A, if not applicable):

Are there any shareholders, directors, officers, owners, partners or proprietors that the submitting <u>Business Entity</u> has in common with this firm?	☐ Yes ☐ No

Individual's Name <i>(Include middle initial)</i>	Position/Title with Firm/Company

2.1 Does the <u>Business Entity</u> have any <u>construction</u> -related <u>affiliates</u> not identified in the response to question 2.0 above? <i>(Attach additional pages if necessary.)</i>	☐ Yes ☐ No

Affiliate Name	Affiliate EIN (If available)	Affiliate's Primary Business Activity

Affiliate Address

Explain relationship with the affiliate and indicate percent of ownership, if applicable *(enter N/A, if not applicable)*:

Are there any shareholders, directors, officers, owners, partners or proprietors that the submitting Business Entity has in common with this affiliate?	☐ Yes ☐ No

Individual's Name <i>(Include middle initial)</i>	Position/Title with Firm/Company

2.2 Has the <u>Business Entity</u> participated in any <u>construction-related Joint Ventures</u> within the past three (3) years? <i>(Attach additional pages if necessary.)</i>	☐ Yes ☐ No

Joint Venture Name	Joint Venture EIN (If available)	Identify parties to the Joint Venture

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

III. CONTRACT HISTORY

3.0 Has the Business Entity completed any construction contracts? ☐ Yes ☐ No

If "Yes," list the ten most recent construction contracts the Business Entity has completed using Attachment A – Completed Construction Contracts, found at www.osc.state.ny.us/vendrep/documents/questionnaire/ac3294s.doc.

If less than ten, include most recent subcontracts on projects up to that number.

3.1 Does the Business Entity currently have uncompleted construction contracts? ☐ Yes ☐ No

If "Yes," list all current uncompleted construction contracts by using Attachment B – Uncompleted Construction Contracts, found at www.osc.state.ny.us/vendrep/documents/questionnaire/ac3295s.doc.

Note: Ongoing projects must be included.

IV. INTEGRITY – CONTRACT BIDDING

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

4.0 Been suspended or debarred from any government contracting process or been disqualified on any government procurement? ☐ Yes ☐ No

4.1 Been subject to a denial or revocation of a government prequalification? ☐ Yes ☐ No

4.2 Had any bid rejected by a government entity for lack of qualifications, responsibility or because of the submission of an informal, non-responsive or incomplete bid? ☐ Yes ☐ No

4.3 Had a proposed subcontract rejected by a government entity for lack of qualifications, responsibility or because of the submission of an informal, non-responsive or incomplete bid? ☐ Yes ☐ No

4.4 Had a low bid rejected on a government contract for failure to make good faith efforts on any Minority-Owned Business Enterprise, Women-Owned Business Enterprise or Disadvantaged Business Enterprise goal or statutory affirmative action requirements on a previously held contract? ☐ Yes ☐ No

4.5 Agreed to a voluntary exclusion from bidding/contracting with a government entity? ☐ Yes ☐ No

4.6 Initiated a request to withdraw a bid submitted to a government entity or made any claim of an error on a bid submitted to a government entity? ☐ Yes ☐ No

For each "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, project(s), relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

V. INTEGRITY – CONTRACT AWARD

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

5.0 Defaulted on or been suspended, cancelled or terminated for cause on any contract? ☐ Yes ☐ No

5.1 Been subject to an administrative proceeding or civil action seeking specific performance or restitution (except any disputed work proceeding) in connection with any government contract? ☐ Yes ☐ No

5.2 Entered into a formal monitoring agreement, consent decree or stipulation settlement as specified by, or agreed to with, any government entity? ☐ Yes ☐ No

5.3 Had its surety called upon to complete any contract whether government or private sector? ☐ Yes ☐ No

5.4 Forfeited all or part of a standby letter of credit in connection with any government contract? ☐ Yes ☐ No

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

V. INTEGRITY – CONTRACT AWARD

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

For each “Yes,” provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity/owners involved, project(s), contract number(s), relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

VI. CERTIFICATIONS/LICENSES

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

6.0 Had a revocation or <u>suspension</u> of any business or professional permit and/or license?	☐ Yes ☐ No
6.1 Had a denial, decertification, revocation or forfeiture of New York State certification of <u>Minority-Owned Business Enterprise</u> , <u>Women-Owned Business Enterprise</u> or a federal certification of <u>Disadvantaged Business Enterprise</u> status, for other than a change of ownership?	☐ Yes ☐ No

For each “Yes,” provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

VII. LEGAL PROCEEDINGS/GOVERNMENT INVESTIGATIONS

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

7.0 Been the subject of a criminal <u>investigation</u> , whether open or closed, or an indictment for any business-related conduct constituting a crime under local, state or <u>federal</u> law?	☐ Yes ☐ No
7.1 Been the subject of: (i.) An indictment, grant of immunity, <u>judgment</u> or conviction (including entering into a plea bargain) for conduct constituting a crime; or (ii.) Any criminal <u>investigation</u> , felony indictment or conviction concerning the formation of, or any business association with, an allegedly false or fraudulent <u>Minority-Owned Business Enterprise</u> , <u>Women-Owned Business Enterprise</u> , or a <u>Disadvantaged Business Enterprise</u> ?	☐ Yes ☐ No ☐ Yes ☐ No
7.2 Received any <u>OSHA</u> citation, which resulted in a final determination classified as <u>serious</u> or <u>willful</u> ?	☐ Yes ☐ No
7.3 Had a <u>government entity</u> find a willful prevailing wage or supplemental payment violation?	☐ Yes ☐ No
7.4 Had a New York State Labor Law violation deemed willful?	☐ Yes ☐ No
7.5 Entered into a consent order with the New York State Department of Environmental Conservation, or a <u>federal</u> , state or local government enforcement determination involving a violation of <u>federal</u> , state or local environmental laws?	☐ Yes ☐ No

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

VII. LEGAL PROCEEDINGS/GOVERNMENT INVESTIGATIONS

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

7.6 Other than previously disclosed, been the subject of any <u>citations</u>, notices or violation orders; a pending administrative hearing, proceeding or determination of a violation of: • <u>Federal</u>, state or local health laws, rules or regulations; • <u>Federal</u>, state or local environmental laws, rules or regulations; • Unemployment insurance or workers compensation coverage or <u>claim</u> requirements; • Any labor law or regulation, which was deemed willful; • Employee Retirement Income Security Act (ERISA); • <u>Federal</u>, state or local human rights laws; • <u>Federal</u>, state or local security laws?	☐ Yes ☐ No

For each "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

Note: Information regarding a determination or finding made in error, which was subsequently corrected or overturned, and/or was withdrawn by the issuing government entity, is not required.

VIII. LEADERSHIP INTEGRITY

If the Business Entity is a Joint Venture Entity, answer "N/A - Not Applicable" to questions in this section.

Within the past five (5) years has any individual previously identified or any individual currently or formerly having the authority to sign, execute or approve bids, proposals, contracts or supporting documentation on behalf of the Business Entity with any government entity been:

8.0 <u>Sanctioned</u> relative to any business or professional permit and/or license?	☐ Yes ☐ No ☐ N/A
8.1 <u>Suspended</u>, <u>debarred</u> or <u>disqualified</u> from any <u>government contracting process</u>?	
8.2 The subject of a criminal <u>investigation</u>, whether open or closed, or an indictment for any business-related conduct constituting a crime under local, state or <u>federal</u> law?	☐ Yes ☐ No ☐ N/A
8.3 Charged with a misdemeanor or felony, indicted, granted immunity, convicted of a crime or subject to a judgment for: (i.) Any business-related activity, including but not limited to fraud, coercion, extortion, bribe or bribe-receiving, giving or accepting unlawful gratuities, immigration or tax fraud, racketeering, mail fraud, wire fraud, price-fixing or collusive bidding; or (ii.) Any crime, whether or not business-related, the underlying conduct of which related to truthfulness, including but not limited to the filing of false documents or false sworn statements, perjury or larceny	☐ Yes ☐ No ☐ N/A

For each "Yes," provide an explanation of the issue(s), the individual involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

IX. FINANCIAL AND ORGANIZATIONAL CAPACITY			
9.0 Within the past five (5) years, has the <u>Business Entity</u> or any <u>affiliate</u> received any <u>formal unsatisfactory performance assessment(s)</u> from any <u>government entity</u> on any contract?			☐ Yes ☐ No
<i>If "Yes," provide an explanation of the issue(s), the <u>Business Entity</u> involved, the relationship to the submitting <u>Business Entity</u>, the <u>government entity</u> involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.</i>			
9.1 Within the past five (5) years, has the <u>Business Entity</u> or any <u>affiliate</u> had any <u>liquidated damages</u> assessed over \$25,000?			☐ Yes ☐ No
<i>If "Yes," provide an explanation of the issue(s), the <u>Business Entity</u> involved, the relationship to the submitting <u>Business Entity</u>, relevant dates, the contracting party involved, the amount assessed and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.</i>			
9.2 Within the past five (5) years, has the <u>Business Entity</u> or any <u>affiliate</u> had any <u>liens, claims or judgments</u> over \$25,000 filed against the <u>Business Entity</u> which remain undischarged or were unsatisfied for more than 90 days? (Note: Including but not limited to tax warrants or liens. Do not include UCC filings.)			☐ Yes ☐ No
<i>If "Yes," provide an explanation of the issue(s), the <u>Business Entity</u> involved, the relationship to the submitting <u>Business Entity</u>, relevant dates, the Lien holder or Claimants' name(s), the amount of the <u>lien(s)</u> and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.</i>			
9.3 In the last seven (7) years, has the <u>Business Entity</u> or any <u>affiliate</u> initiated or been the subject of any bankruptcy proceedings, whether or not closed, or is any bankruptcy proceeding pending?			☐ Yes ☐ No
<i>If "Yes," provide the <u>Business Entity</u> involved, the relationship to the submitting <u>Business Entity</u>, the bankruptcy chapter number, the court name and the docket number. Indicate the current status of the proceedings as "Initiated," "Pending" or "Closed." Provide answer below or attach additional sheets with numbered responses.</i>			
9.4 What is the <u>Business Entity's</u> Bonding Capacity?			
a. Single Project		b. Aggregate (All Projects)	
9.5 List <u>Business Entity's</u> Gross Sales for the previous three (3) Fiscal Years:			
1st Year (Indicate year) Gross Sales	2nd Year (Indicate year) Gross Sales	3rd Year (Indicate year) Gross Sales	
9.6 List <u>Business Entity's</u> Average Backlog for the previous three (3) fiscal years: (Estimated total value of uncompleted work on outstanding contracts)			
1st Year (Indicate year) Amount	2nd Year (Indicate year) Amount	3rd Year (Indicate year) Amount	
9.7 Attach <u>Business Entity's</u> most recent annual <u>financial statement</u> and accompanying notes or complete Attachment C – Financial Information, found at www.osc.state.ny.us/vendrep/documents/questionnaire/ac3296s.xls . (This information must be attached.)			

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR-PROFIT CONSTRUCTION (CCA-2)**

X. FREEDOM OF INFORMATION LAW (FOIL)

10.0 Indicate whether any information provided herein is believed to be exempt from disclosure under the Freedom of Information Law (FOIL).

☐ Yes ☐ No

Note: A determination of whether such information is exempt from FOIL will be made at the time of any request for disclosure under FOIL. Attach additional pages if necessary.

If "Yes," indicate the question number(s) and explain the basis for the claim.

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

Certification

The undersigned: (1) recognizes that this questionnaire is submitted for the express purpose of assisting New York State government entities (including the Office of the State Comptroller (OSC)) in making responsibility determinations regarding award or approval of a contract or subcontract and that such government entities will rely on information disclosed in the questionnaire in making responsibility determinations; (2) acknowledges that the New York State government entities and OSC may, in their discretion, by means which they may choose, verify the truth and accuracy of all statements made herein; and (3) acknowledges that intentional submission of false or misleading information may result in criminal penalties under State and/or Federal Law, as well as a finding of non-responsibility, contract suspension or contract termination.

The undersigned certifies that he/she:

- is knowledgeable about the submitting Business Entity's business and operations;
- has read and understands all of the questions contained in the questionnaire;
- has not altered the content of the questionnaire in any manner;
- has reviewed and/or supplied full and complete responses to each question;
- to the best of his/her knowledge, information and belief, confirms that the Business Entity's responses are true, accurate and complete, including all attachments, if applicable;
- understands that New York State government entities will rely on the information disclosed in the questionnaire when entering into a contract with the Business Entity; and
- is under an obligation to update the information provided herein to include any material changes to the Business Entity's responses at the time of bid/proposal submission through the contract award notification, and may be required to update the information at the request of the New York State government entities or OSC prior to the award and/or approval of a contract, or during the term of the contract.

Signature of Owner/Official _____

Printed Name of Signatory _____

Title _____

Name of Business _____

Address _____

City, State, Zip _____

Sworn to before me this _____ day of _____, 20__;

_____ Notary Public

**NEW YORK STATE
VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT A – COMPLETED CONSTRUCTION CONTRACTS**

Vendor Name:

NYS Vendor ID:

Question 3.0: List the ten most recent construction contracts the Business Entity has completed. If less than ten, include most recent subcontracts on projects up to that number:						
1.	Agency/Owner		Award Date	Amount		Date Completed
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
2.	Agency/Owner		Award Date	Amount		Date Completed
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
3.	Agency/Owner		Award Date	Amount		Date Completed
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
4.	Agency/Owner		Award Date	Amount		Date Completed
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
5.	Agency/Owner		Award Date	Amount		Date Completed
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	

NEW YORK STATE
VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT A – COMPLETED CONSTRUCTION CONTRACTS

Vendor Name:

NYS Vendor ID:

Question 3.0: List the ten most recent construction contracts the Business Entity has completed. If less than ten, include most recent subcontracts on projects up to that number:						
6.	Agency/Owner		Award Date	Amount	Date Completed	
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
7.	Agency/Owner		Award Date	Amount	Date Completed	
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
8.	Agency/Owner		Award Date	Amount	Date Completed	
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
9.	Agency/Owner		Award Date	Amount	Date Completed	
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
10.	Agency/Owner		Award Date	Amount	Date Completed	
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	

NEW YORK STATE
VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT B – UNCOMPLETED CONSTRUCTION CONTRACTS

Vendor Name:

NYS Vendor ID:

Question 3.1: List all current uncompleted construction contracts:									
1.	Agency/Owner			Award Date		Completion Date			
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer						
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable				
			Total Contract Amount	Amount Sublet to others	Uncompleted Amount				
	Agency/Owner			Award Date		Completion Date			
2.	Contact Person	Telephone No.	Designer Architect and /or Design Engineer						
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable				
			Total Contract Amount	Amount Sublet to others	Uncompleted Amount				
	Agency/Owner			Award Date		Completion Date			
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer						
3.	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable				
			Total Contract Amount	Amount Sublet to others	Uncompleted Amount				
	Agency/Owner			Award Date		Completion Date			
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer						
	Contact No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable				
4.			Total Contract Amount	Amount Sublet to others	Uncompleted Amount				
	Agency/Owner			Award Date		Completion Date			
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer						
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable				
			Total Contract Amount	Amount Sublet to others	Uncompleted Amount				

**NEW YORK STATE
VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT B – UNCOMPLETED CONSTRUCTION CONTRACTS**

Vendor Name:

NYS Vendor ID:

Question 3.1: List all current uncompleted construction contracts:									
5.	Agency/Owner			Telephone No.	Designer Architect and /or Design Engineer		Award Date		Completion Date
	Contact Person								
	Contract No.	Prime or Sub		Joint Venture (JV) Name, if applicable			EIN of JV, if applicable		
				Total Contract Amount	Amount Sublet to others			Uncompleted Amount	
6.	Agency/Owner			Telephone No.	Designer Architect and /or Design Engineer		Award Date		Completion Date
	Contact Person								
	Contract No.	Prime or Sub		Joint Venture (JV) Name, if applicable			EIN of JV, if applicable		
				Total Contract Amount	Amount Sublet to others			Uncompleted Amount	
7.	Agency/Owner			Telephone No.	Designer Architect and /or Design Engineer		Award Date		Completion Date
	Contact Person								
	Contract No.	Prime or Sub		Joint Venture (JV) Name, if applicable			EIN of JV, if applicable		
				Total Contract Amount	Amount Sublet to others			Uncompleted Amount	
8.	Agency/Owner			Telephone No.	Designer Architect and /or Design Engineer		Award Date		Completion Date
	Contact Person								
	Contract No.	Prime or Sub		Joint Venture (JV) Name, if applicable			EIN of JV, if applicable		
				Total Contract Amount	Amount Sublet to others			Uncompleted Amount	

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C - FINANCIAL INFORMATION**

NYS Vendor ID: _____

As of Date: _____

ASSETS

Current Assets

1. Cash		\$	_____	-
2. Accounts receivable - less allowance for doubtful accounts	\$	_____	-	
Retainers included in accounts receivable	\$	_____	-	
Claims included in accounts receivable not yet approved or in litigation	\$	_____	-	
Total Accounts Receivable		\$	_____	-
3. Notes receivable - due within one year		\$	_____	-
4. Inventory - materials		\$	_____	-
5. Contract costs in excess of billings on uncompleted contracts		\$	_____	-
6. Accrued income receivable				
Interest	\$	_____	-	
Other (list) _____	\$	_____	-	
_____	\$	_____	-	
Total Accrued Income Receivable		\$	_____	-
7. Deposits				
Bid and Plan _____	\$	_____	-	
Other (list) _____	\$	_____	-	
_____	\$	_____	-	
Total Deposits		\$	_____	-
8. Prepaid Expenses				
Income Taxes	\$	_____	-	
Insurance	\$	_____	-	
Other (list) _____	\$	_____	-	
_____	\$	_____	-	
Total Prepaid Expenses		\$	_____	-
9. Other Current Assets				
Other (list) _____	\$	_____	-	
_____	\$	_____	-	
Total Other Current Assets		\$	_____	-
10. Total Current Assets				\$ _____ -
11. Investments				
Listed securities-present market value	\$	_____	-	
Unlisted securities-present value	\$	_____	-	
Total Investments				\$ _____ -

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C - FINANCIAL INFORMATION**

NYS Vendor ID: _____

12. Fixed Assets

Land	\$	-	
Building and improvements	\$	-	
Leasehold improvements	\$	-	
Machinery and equipment	\$	-	
Automotive equipment	\$	-	
Office furniture and fixtures	\$	-	
Other (list) _____	\$	-	
	\$	-	
Total		\$	-
Less: Accumulated depreciation		\$	-
Total Fixed Assets - Net			\$ -

13. Other Assets

Loans receivable			
Officers	\$	-	
Employees	\$	-	
Shareholders	\$	-	
Cash surrender value of officers' life insurance	\$	-	
Organization expense – net of amortization	\$	-	
Notes receivable - due after one year	\$	-	
Other (list) _____	\$	-	
	\$	-	
Total Other Assets			\$ -

14. TOTAL ASSETS

\$ -

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C - FINANCIAL INFORMATION

NYS Vendor ID: _____

LIABILITIES

Current Liabilities

15. Accounts payable	\$	-
16 a. Loans from shareholders - due within one year	\$	-
16 b. Other Loans - due within one year	\$	-
17. Notes payable - due within one year	\$	-
18. Mortgage payable - due within one year	\$	-
19. Other payables - due within one year		
Other (list) _____	\$	-
_____	\$	-

Total Other Payables - due within one year	\$	-
20. Billings in excess of costs and estimated earnings	\$	-
21. Accrued expenses payable		
Salaries and wages	\$	-
Payroll taxes	\$	-
Employees' benefits	\$	-
Insurance	\$	-
Other	\$	-
Total Accrued Expenses Payable	\$	-
22. Dividends payable	\$	-
23. Income taxes payable		
State	\$	-
Federal	\$	-
Other	\$	-
Total Income Taxes Payable	\$	-
24. Total current liabilities	\$	-
25. Deferred income taxes payable		
State	\$	-
Federal	\$	-
Other	\$	-
Total Deferred Income Taxes	\$	-
26. Long Term Liabilities		
Loans from shareholders - due after one year	\$	-
Other Loans - due within one year		
Principle	\$	-
Interest	\$	-
Notes payable - due after one year	\$	-
Mortgage - due after one year	\$	-
Other payables - due after one year	\$	-
Other (list) _____	\$	-
_____	\$	-

Total Long Term Liabilities	\$	-

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C - FINANCIAL INFORMATION**

NYS Vendor ID: _____

27. Other Liabilities

Other (list) _____	\$ _____
_____	\$ _____
_____	\$ _____

Total Other Liabilities

\$ _____

28. TOTAL LIABILITIES

\$ _____

NET WORTH

29. Net Worth (if proprietorship or partnership)

\$ _____

30. Stockholders' Equity

Common stock issued and outstanding	\$ _____

Preferred stock issued and outstanding	\$ _____

Retained earnings	\$ _____

Total	\$ _____

Less: Treasury stock	\$ _____

31. TOTAL STOCKHOLDERS' EQUITY

\$ _____

32. TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY

\$ _____



This form must be submitted with contract documentation for potential award. Any subcontractor anticipated to make 100K or more on this contract must have a Vendor Responsibility questionnaire certified within the last six months.

Legal name of Company
Phone Number
E-mail Address

Preparer's Name _____

Title _____

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General Conditions

GENERAL CONDITIONS

Table of Articles

1. The Contract Documents
2. Defined Terms
3. Interpretation of the Contract Documents
4. Shop Drawings and Other Submittals
5. Schedule
6. Materials
7. Contractor's Supervision
8. Use of Premises
9. Permits and Compliance
10. Inspection and Material Acceptance
11. Change Orders
12. Site Conditions
13. Suspension of Work
14. Time of Completion and Termination for Cause
15. Termination for Contractor's Employment for the Convenience of the State of New York
16. Disputes
17. Statutory Requirements for the Utilization of Minority and Women Owned Business Enterprises
18. Subcontracts
19. Coordination of Separate Contracts (WICKS Projects)
20. Responsibility for Damage and Indemnification
21. Insurance
22. Occupancy Prior to Completion and Acceptance; Substantial Completion
23. Payment
24. Audits and Records
25. Labor Law and Prevailing Wages Notifications Provisions
26. Statutory Requirements for Restrictions on Contracts during the Procurement Process and Disclosure of Contacts and Responsibility of Offerers
27. Embodied Carbon Disclosures
28. Miscellaneous Provisions

Appendices:

Standard Clauses for all New York State Contracts – Appendix A

Appendix B

ARTICLE 1 – THE CONTRACT DOCUMENTS

- 1.1 The Contract Documents are comprised of the following documents, all of which are hereby incorporated by reference and shall hereinafter be referenced as the “Contract.”
- Appendix A “Standard Clauses For New York State Contracts”;
 - Agreement;
 - General Conditions;
 - Supplemental Conditions;
 - Appendix B;
 - Specifications;
 - Drawings;
 - Instructions to Bidders;
 - Performance and Payment Bond;
 - Labor and Materials Bond;
 - All Required Certificates of Insurance;
 - All Addenda issued prior to the receipt of bids;
 - An Approved MWBE Utilization Plan, if required;
- 1.2 The Contract Documents form the Contract. The Contract represents the entire and integrated agreement between the parties and supersedes all prior negotiations, representations and agreements, either written or oral, including Bidding Documents.
- 1.3 The Contract may not be modified except in accordance with the General Conditions.

ARTICLE 2 – DEFINED TERMS

- 2.1 The following terms shall have the meanings ascribed to them in this Article, wherever they appear in the Contract Documents.
- 2.2 The term “Bid” means the approved prepared bid form on which the Bidder is to submit or has submitted a bid for the Project contemplated.
- 2.3 The term “Bidder” means any individual, firm or corporation submitting a Bid for the Project contemplated, acting directly or through a duly authorized representative.
- 2.4 The term “Bid Security” means the collateral in the form of a certified check, bank check or bid bond to be furnished by the Bidder as a guarantee of his or her ability to procure the minimum equipment and liquid assets specified and that Bidder shall enter into a Contract with the Office for the performance of the Work.
- 2.5 The term “Certificate of Acceptance” means the certificate prepared by the Director’s Representative evidencing the Work is physically completed and setting forth the Physical Completion Date.
- 2.6 The term “Certificate of Substantial Completion” means the certificate prepared by the

Director's Representative evidencing that the Work is substantially completed and setting forth the date of Substantial Completion.

- 2.7 The term "Change Order" means a written order to the Contractor signed by the Contractor, Director's Representative, and NYS Office of State Comptroller, issued after the execution of the Contract, authorizing a Change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order.
- 2.8 The term "Commissioner" means the Commissioner of Parks, Recreation and Historic Preservation.
- 2.9 The term "Comptroller" means the Comptroller of the State of New York.
- 2.10 The term "Contractor" means the person, firm, partnership or corporation executing the Contract or the successor or assignee of the Contractor approved in writing by the Commissioner.
- 2.11 The term "Days" shall mean calendar days.
- 2.12 The term "Designated Payment Office" shall be the regional office as identified on the cover of the Project Manual.
- 2.13 The term "Director" means the Director of Capital Programs or equivalent for the Office of Parks, Recreation and Historic Preservation, who will have general direction and supervision of the Work, except for Appendix B where the term "Director" means the Director of the Division on Minority and Women's Business Development.
- 2.14 The "Director's Representative" means an employee of the Office designated by the Director as the Director's authorized representative. Under the direction of the Director, the Representative shall have complete charge of the Work and shall exercise full supervision and direction of the Work. Except where noted, the Contract Documents specifically designate a person to perform a function or duty, it shall mean the Director's Representative but only for the performance of that function or duty. Where the word "directed" appears in the Contract Documents, the words "by the Director's Representative" shall be deemed inserted thereafter in each case except where it is obviously inappropriate in context.
- 2.15 The term "Labor and Materials Bond" is a bond guaranteeing prompt payment of monies due to all persons furnishing labor or materials to the Contractor or any Subcontractor in the prosecution of the Work provided for as set forth in State Finance Law Section 137.
- 2.16 The term "Liquidated Damages" means the total amount of money to be assessed against the Contractor for delay in completion of the Contract. The total amount of such damages shall not exceed the amount per day stipulated in Article 14.10 times the numbers of Days completion is delayed, unless otherwise specified in the Notice to Bidders.
- 2.17 The term "Material" means any approved material acceptable to the Director's

Representative and conforming to the requirements of the Specifications. All processes and materials shall at all times be open to inspection and testing by the Office and its authorized representatives.

- 2.18 The term “Offerer” shall mean the individual or entity, or any employee, agent of consultant or person acting on behalf of such individual or entity that contacts a governmental entity about a governmental procurement during the restricted period of such governmental procurement.
- 2.19 The term “Office” or “OPRHP” means the New York State Office of Parks, Recreation and Historic Preservation.
- 2.20 The term “Performance Bond” means a written guaranty from a third party guarantor provided to the Office by Contractor upon the award of the Contract to ensure the full performance of the Work and completion of the Project as set forth in the Contract Documents. The form of the Performance Bond is subject to the approval of the Office and the Attorney General.
- 2.21 The term “Physical Completion Date” means the date upon which Director’s Representative deems that all deficiencies noted on the Punch List have been corrected or completed as evidenced by the issuance of the Certificate of Acceptance.
- 2.22 The term “Plan” or “Drawings” means an illustrated graphic that typically includes technical layout information, specification data, and details as required to facilitate the construction of an entire project or smaller unit of work.
- 2.23 The term “Premises” means all land, buildings, structures, or other items of any kind located around or adjacent to the Site and owned, occupied or otherwise used by the State.
- 2.24 The term “Project” means Work at the site carried out pursuant to one or more sets of Contract Documents.
- 2.25 The term “Project Manual” means the combined Notice to Bidders, Instructions to Bidders, Supplementary Conditions, the Summary of and Implementation Guidelines for § 139-J of the State Finance Law, Sample Forms, Bid Forms, General Conditions, All Referenced Appendices, Prevailing Wage Rates, the Drawings and Specifications; the Invitation for Bids and the Bid, issued prior to the receipt of bids.
- 2.26 The term “Provide” means to furnish and install, complete, in place and ready for operation and use.
- 2.27 The term “Punch List” means a document that is attached to the Certificate of Substantial Completion prepared by the Director’s Representative or their designee listing work that does not conform to the Contract Documents that the Contractor must complete or correct after Substantial Completion, but before the Physical Completion Date and final payment.

- 2.28 The term “Samples” are physical examples submitted by the Contractor of materials, equipment or workmanship to establish a standard, which the Contractor is required to meet.
- 2.29 The term “Schedule of Values” means a breakdown of the Contract Sum in tabular form that lists the dollar value of individual work items. Schedule to be provided in accordance with specific Division 01 requirements and in enough detail to facilitate evaluation of the Payment Application by the Director’s Representative.
- 2.30 The term “Shop Drawings” are drawings, diagrams, illustrations, schedules, test data, performance charts, cuts, brochures and other data which are prepared by the Contractor or any Subcontractor, manufacturer, supplier or distributor, and submitted by the Contractor and which illustrate a portion of the Work.
- 2.31 The term “Site” means the area within the contract limit lines as identified in the drawings, or adjacent areas designated in writing by the Director’s Representative. Some contracts might involve separate and distinct sites.
- 2.32 The term “Specifications” means the body of directions and/or requirements contained in this document, together with all documents of any description, and agreements made (or to be made), pertaining to the methods (or manner), of performing the work and quality (as shown by test records) of accepted materials to be furnished under this Contract.
- 2.33 The term “State” means the State of New York.
- 2.34 The term “Subcontractor” means a person, firm, partnership or corporation executing a portion of the Work for the “Contractor,” who has the sole responsibility for his or her performance.
- 2.35 The term “Substantial Completion” means that the Work is sufficiently completed in the sole discretion of the Director’s Representative in accordance with the the Contract, so that OPRHP may occupy or use the Work for its intended purpose without unscheduled interruption caused by the needed completion of any remaining or unfinished work, as evidenced by the issuance of a Certificate of Substantial Completion. The terms “Substantially Complete” and “Substantially Completed” as applied to the work refer to Substantial Completion of the Work.
- 2.36 The term “Surety” means the entity which is bound with and for the Contractor, and which is engaged to be responsible for the Contractor’s acceptable performance of the Project for which he or she has contracted and for all Labor, Performance, and Material Bonds.
- 2.37 The term “Work” means the total sum of labor, supervision, materials and equipment necessary for the proper completion of the Contract as set forth in the Contract Documents.

ARTICLE 3 – INTERPRETATION OF CONTRACT DOCUMENTS

- 3.1 The Plans, Drawings and Specifications are complementary, and what is called for by one shall be as binding as if called for by all. It is not intended to include work not properly inferable from the Plans, Drawings and Specifications. In all cases, labelled dimensions shall take precedence over scaled dimensions, and the larger scale details take precedence over smaller scale drawings. In the case of difference between Drawings and Specifications, the Specifications shall govern.
- 3.2 Upon his or her own initiative or the Contractor's written request, the Director's Representative may issue written interpretation or drawings necessary for the proper execution or progress of the work which interpretation shall be consistent with and reasonably inferable from the Contract Documents.
- 3.3 The language of the Contract Documents is directed at the Contractor unless specifically stated otherwise.
- 3.4 The organization of the Specifications into divisions, sections and articles, and the arrangement of Drawings shall not control the Contractor in dividing the Work among subcontractors or in establishing the extent of Work to be performed by any trade.
- 3.5 In the event of conflicting provisions in the Contract Documents, the Specifications shall take precedence over the Drawings.
- 3.6 If during the performance of the Work, the Contractor identifies a conflict in the Contract Documents, or a variation from any applicable statute, rule or regulation, the Contractor shall promptly notify the Director's Representative in writing of the conflict. The Director's Representative shall promptly acknowledge the notification in writing and advise the Contractor, pursuant to Paragraph 3.1 of these General Conditions, as to the interpretation to be followed in the performance of the Work.

ARTICLE 4 – SHOP DRAWINGS AND OTHER SUBMITTALS

- 4.1 Shop Drawings (see Article 2.30)
- 4.2 Product data are manufacturer's catalog sheets, brochures, standard diagrams, illustrations, schedules, performance charts, test data, standard schematic drawings, specifications and installation instructions.
- 4.3 Samples (see Article 2.8) are physical examples submitted by the Contractor of materials, equipment or workmanship to establish a standard that the Contractor is required to meet.
- 4.4 The Contractor and the Director's Representative shall adhere to the submittal and scheduling requirements for Shop Drawings, product data and Samples set out in the Specifications.
- 4.5 By approving and submitting Shop Drawings and samples, the Contractor represents that the Contractor has determined and verified all field measurements, field construction

criteria, materials, catalog numbers and similar data and that he or she has checked and coordinated each Shop Drawing and Sample with the requirements of the Contract Documents.

- 4.6 The Director's Representative's approval of Shop Drawings, product data and Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has previously informed the Director's Representative of the deviation in a separate writing at the time of submission and received written approval for the specific deviations. The Director's Representative's approval shall not relieve the Contractor from responsibility for errors or omissions in the shop drawings, product data or samples.
- 4.7 No portion of the Work requiring Shop Drawings, product data or Sample submission shall be commenced until the appropriate submission has been approved by the Director's Representative.
- 4.8 Any portions of the Work requiring Shop Drawings, product data and Samples shall be installed in accordance with the approved Shop Drawings, product data and Samples.

ARTICLE 5 – SCHEDULE

- 5.1 Each Contractor shall deliver to the Director's Representative and receive approval prior to commencing work, a detailed schedule concerning his or her operations upon the Project on a form acceptable to the Office, which shall indicate completion within the specified time frame, to the satisfaction of the Director's Representative.
- 5.2 During the term of this Agreement, the Director's Representative may require any Contractor to modify any schedules which he or she has submitted either before or after they are approved so that:
 - (a) The Work or the Project may be properly progressed.
 - (b) Changes in the Work or the Work of other Contractors are properly reflected in these schedules.

ARTICLE 6 - MATERIALS

- 6.1 All materials, equipment and articles used permanently in the Work that become the property of the State shall be new unless specifically stated otherwise in the Contract.
- 6.2 Except where specifically provided otherwise, whenever any product is specified by the name, trade name, make, model or catalog number of any manufacturer or supplier, the intent is not to limit competition, but to establish a standard of quality that the Director's Representative has determined is necessary. The words "or equal" shall be deemed inserted in each instance. The Contractor may use any product equal to that named in the Contract

Documents that is approved by the Director's Representative and which meets the requirements of the Contract Documents provided the Contractor gives timely notice of his or her intent in accordance with the submittal and scheduling requirements.

- 6.3 The Contractor shall have the burden of proving at the Contractor's own cost and expense to the satisfaction of the Director's Representative that the proposed product is equal to the named product. The Director's Representative may establish criteria for product approval. The Director's Representative shall determine in his or her absolute discretion whether a proposed product is to be approved.
- 6.4 If the Contractor fails to comply with the provisions of this Article, or if the Director's Representative determines that the proposed product is not equal to that named, the Contractor shall supply the product named.
- 6.5 The Contractor shall have and make no claim for the extension of time or for damages because the Director's Representative requires a reasonable period of time to consider a product proposed by the Contractor or because the Director's Representative disapproves such a product.
- 6.6 Where optional materials or methods are specified, or where "or equal" submissions are approved, the Contractor shall make all adjustments to contingent work, whether the contingent work be the Work of its contract or the Work of another Contract, necessary to accommodate the option or "or equal" product it selects without extra or additional cost.
- 6.7 The Contractor shall within 48 hours remove from the Premises all materials rejected by the Director's Representative as failing to conform to the Contract, whether incorporated in the Work or not, and the Contractor shall promptly substitute satisfactory materials in accordance with the Contract and without expense to the Office. In addition, the Contractor shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.
- 6.8 Royalties and patents: The Contractor shall pay all royalties and license fees. The Contractor shall defend all suits or claims for infringement of any patent rights and shall defend, indemnify and save the State harmless from loss on account thereof, except that the State shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified.
- 6.9 Asbestos Free Materials: All materials used for construction shall be free of asbestos containing materials. If asbestos is found in installed products not previously approved by the State, then it will be the responsibility of the contractor to abate the asbestos containing material and replace the work with new asbestos free materials at no cost to the State.
- 6.10 The contractor agrees that if the value of this contract exceeds \$100,000 all structural steel, reinforcing steel and other major steel items to be incorporate in the Work of this Contract shall be produced and made in whole or substantial part in the United States, its territories or possessions.

ARTICLE 7 – CONTRACTOR'S SUPERVISION

- 7.1 The Contractor shall designate a competent supervisor for the Work to represent the Contractor at the site at all times with authority to act for the Contractor (“Contractor’s Representative”). The Contractor shall notify the Director’s Representative in writing of the identity of the Contractor’s Representative prior to the commencement of the Work. All directions given the Contractor's Representative shall be as binding as if given to the Contractor.
- 7.2 Should the Director’s Representative deem any employee of the Contractor incompetent or negligent or for any cause unfit for his or her duty, the Contractor shall dismiss such employee and he or she shall not again be employed on the Work.
- 7.3 The Contractor’s use of any Subcontractor shall not diminish the Contractor’s obligations to complete the Work in accordance with the Contract. The Contractor shall control and coordinate the Work of its Subcontractors.
- 7.4 The Contractor shall be responsible for informing its Subcontractors and suppliers of all the terms, conditions and requirements of the Contract Documents including, but not limited to the General Conditions, Supplemental Conditions, the Drawings and Specifications, Appendix A, and changes made by Change Orders.

ARTICLE 8 – USE OF PREMISES

- 8.1 If the Premises are occupied, the Contractor, the Contractor's Subcontractors and their employees shall comply with the regulations governing access to, operation of, and conduct while in or on the Premises and shall perform the Work in such a manner as not to unreasonably interrupt or interfere with the conduct of business.
- 8.2 The Contractor, the Contractor's Subcontractors and their employees shall not have access to or be admitted into any area of the Premises outside the Site except with the written permission of the Director's Representative.

ARTICLE 9 – PERMITS AND COMPLIANCE WITH APPLICABLE LAWS

- 9.1 The Contractor shall obtain, maintain and pay for all permits and licenses legally required and shall give all notices, pay all fees, and comply with all laws, rules and regulations applicable to the Work at no additional cost.
- 9.2 Contractor shall comply with all federal and state laws, codes and regulations applicable to the conduct of the activities authorized by this Contract.
- 9.3 If, in carrying out this Work, a harmful dust hazard is created for which appliances or methods for the elimination of harmful dust have been approved by the Industrial Board of

Appeals, then the Contractor shall install, maintain and effectively operate such appliances and methods during the life of this Contract; and in case of Contractor's failure to comply, as provided by Section 222-a of the Labor Law, the Contract shall be void.

- 9.4 In accordance with Worker's Compensation Law (WCL) §141-b (Suspension and Debarment), any person subject to a final assessment of civil fines or penalties or a stop-work order, or that has been convicted of a misdemeanor for a violation of WCL §§ 26 (Enforcement of Payment in Default), 52 (Effect of Failure to Secure Compensation) or 131 (Payroll Records), and any substantially-owned affiliated entity of such person, shall be ineligible to submit a bid on or be awarded any such public work contract or subcontract with the State, any municipal corporation or public body for a period of one (1) year from the final determination or conviction. Any person convicted of a felony under Article 8 (Administration) of the WCL, or a misdemeanor under WCL §§125 (Job Description Prohibited Based on Prior Receipt of Benefits) and 125-a (Civil Enforcement) shall be ineligible to submit a bid or be awarded any public work contract or subcontract with the State, any municipal corporation or public body for a period of five (5) years from such conviction.
- 9.5 The Contractor certifies and warrants that all heavy-duty vehicles, as defined in New York State Environmental Conservation Law (ECL) section 19-0323, to be used under this Contract will comply with the specifications and provisions of ECL section 19-0323, as well as any regulations promulgated pursuant thereto, including NYCRR Part 248; which, requires the use of Best Available Retrofit Technology (BART) and Ultra-Low Sulfur Diesel (ULSD) fuel.
- 9.6 During the term of this Contract, the Contractor agrees to report any observed or suspected illegal activity of its employees, agents or other third parties, to the assigned Director's Representative, OPRHP Director of Capital Programs, OPRHP Counsel's Office, the State Inspector General or other law enforcement agency. Failure to report criminal conduct associated with a contract awarded by the Office, shall be considered a material breach of this Contract and may provide grounds for disqualification of the subject Contractor or Subcontractor for award of future contracts. The Contractor shall include the provisions of this section in every subcontract, in such a manner that the provisions will be binding upon each Subcontractor as to work performed in connection with this Contract.

ARTICLE 10 – INSPECTION AND MATERIAL ACCEPTANCE

- 10.1 The Director's Representative will inspect and test the Work at reasonable times at the Site, unless the Director's Representative determines to make an inspection or test at the place of production, manufacture or shipment. Such inspection or test shall be conclusive as to whether the material and workmanship inspected or tested conforms to the requirements of the Contract. Such inspection or test shall not relieve the Contractor of responsibility for damage to or loss of the material prior to acceptance. Conducting inspections or tests shall not diminish the Director's Representative the right to reject the completed Work.

- 10.2 The Contractor shall, without charge, promptly correct any Work the Director's Representative determines does not conform to the Contract Documents unless in the public interest the Director's Representative consents to accept such Work with an appropriate adjustment in the Contract price. The Contractor shall promptly remove rejected material from the Premises.
- 10.3 If the Contractor does not promptly correct rejected Work including the Work of another contractor or Subcontractor destroyed or damaged by removal, replacement, or correction, the Director's Representative may (1) correct such Work and charge the cost thereof to the Contractor; or (2) terminate the Contract in accordance with Article 15 of General Conditions.
- 10.4 The Contractor shall furnish promptly, without additional charge, all facilities, labor, material and equipment reasonably needed to perform in a safe and convenient manner such inspections and tests, as the Director's Representative requires.
- 10.5 The Contractor shall keep the Director's Representative informed of the progress of the Work and particularly when the Contractor intends to cover Work not yet inspected or tested. All inspection and tests by the Director's Representative shall be performed in such manner as not to unreasonably delay the Work. The Contractor shall be charged with any additional cost of inspection when the Work is not ready at the time specified by the Director's Representative for inspection.
- 10.6 Should the Director's Representative determine at any time before acceptance of the entire Work to examine Work already completed by removing, uncovering or testing the same, the Contractor shall, on request, promptly furnish all necessary facilities, labor, materials and equipment to conduct such inspection, examination or test. If such Work is found to be defective or nonconforming in any material respect, the Contractor shall defray all the expenses of such examination and satisfactory reconstruction. If the Work is found to meet the requirements of the Contract Documents, the Director's Representative shall compensate the Contractor for additional services involved in such examination and reconstruction. If completion of the Work has been delayed, the contractor may request a suitable extension of time.
- 10.7 No previous inspection or certificates of payment shall relieve the Contractor from the obligation to perform the Work in accordance with the Contract Documents.
- 10.8 The Contractor shall remedy all defects, and pay for the cost of any damage to other Work resulting therefrom, notice of which shall have been provided within a period of one year from the Physical Completion Date in accordance with the General Conditions.

ARTICLE 11 – CHANGE ORDERS

- 11.1 The Office may make changes by altering, adding to or deducting from the Work, and adjusting the Contract price accordingly. All changes Work shall be executed in

conformity with the terms and conditions of the Contract Documents unless otherwise provided in the Order on Contract. Any change in the Contract sum or time for completion shall be adjusted prior to issuing the Order on Contract.

- 11.2 No written or oral instructions shall be construed as directing a change in the Work unless in the form of an Order of Contract signed by the Office and the Contractor and signed by the NYS Office of State Comptroller. The Order of Contract shall describe or enumerate the Work to be performed and state the price to be added to or deducted from the Contract sum. If the extent or cost of the Work is not determinable until after the changed Work is performed, the Order on Contract shall specify the method for determining the cost and extent of the changed Work when completed. If the Contractor disagrees as to any element of the Order on Contract, the Contractor shall indicate the disagreement in writing on the face of the Order on Contract and promptly proceed in accordance with the Order on Contract.
- 11.3 If the Contractor is directed to perform Work for which the Contractor believes he or she is entitled to an Order of Contract, the Contractor shall give the Director prompt written notice and await instructions before proceeding to execute such Work. The Director may order the Contractor to execute the Work and proceed under the Disputes Clause.
- 11.4 The value of any Order of Contract shall be determined by one or more of the following methods:
- (a) By acceptance of prices negotiated or established based on estimated cost plus overhead and profit as applicable.
 - (b) By Prices specifically named in the Specifications or Bid Form.
 - (c) By acceptance of agreed unit prices based on estimated cost plus overhead and profit as applicable.
 - (d) By estimate of the actual cost of labor and materials plus overhead and profit, cost to be determined as the work progresses.
 - (e) By actual cost of labor and materials plus overhead and profit, cost to be determined as the work progresses.
 - (f) By estimate of the value as deductible from the approved detailed estimate.
- 11.5 Overhead shall be defined as an allowance to compensate for all costs, charges and expenses, direct or indirect, except for the actual cost of labor and materials as defined by paragraph 11.6. Overhead shall be considered to include, but not limited to insurance (other than as mentioned in paragraph 11.6) bond or bonds, field and office supervisors and assistants above the level of foreman, use of small tools and minor equipment, incidental job burdens, general office expenses, etc.

11.6 Actual cost of labor and material shall be defined as the amount paid for the following costs, to the extent determined reasonable and necessary:

- (a) Cost of materials delivered to the job site for incorporation into the Contract Work. The value of any material removed and disposed of by the Contractor shall be a credit to the Office.
- (b) Wages paid to workers and foreman and wage supplements paid to labor organizations in accordance with current labor agreements.
- (c) Premiums or taxes paid by the Contractor for Worker's compensation insurance, unemployment insurance, FICA tax and other payroll taxes as required by law, net of actual and anticipated refunds and rebates.
- (d) Sales taxes paid as required by law.
- (e) Allowance for use of construction equipment (exclusive of hand tools and minor equipment), as approved for use by the Director's Representative.
 - i. Rented equipment will be paid for at the actual rental cost.
 - ii. Gasoline, oil and grease required for operation and maintenance will be paid for at the actual cost.
 - iii. When, in the opinion of the Contractor, and as approved by the Director's Representative, suitable equipment is not available on the site, the moving of said equipment to and from the site will be paid for at actual cost.
 - iv. Self-owned equipment, including equipment rented from controlled or affiliated companies. The rate on self-owned equipment used for periods of under five days will be an hourly rate established by taking any published rate which is mutually acceptable to the Contractor and the Director's Representative and determining an hourly rate on the basis of 22 days per month and eight hours per day. Equipment used for periods of five days or more will be billed at a rate equal to 45% of the monthly rate. In the alternative, the Director's Representative may approve for reimbursement a rate representing the allocable costs of ownership.

11.7 Regardless of the method used to determine the value of any Order of Contract, the Contractor will be required to submit evidence satisfactory to the Director to substantiate each and every item that constitutes his or her proposal of the value of the change. The amounts allowed for overhead and profit shall not exceed the applicable percentages as established in the two following paragraphs.

11.8 If the work is done directly by the Contractor, overhead in an amount of 10% may be added

if method (a), (c), (d) or (e) is used, and to the cost of the labor and materials plus overhead there may be added 10% for profit. The percentages for overhead and profit may vary accordingly to the nature, extent and complexity of the Work involved, but in no case shall exceed the percentages set forth in this paragraph and in paragraph 11.9. No percentages for overhead and profit will be allowed on payroll taxes or on the premium portion of overhead pay.

- 11.9 If the Work is done by a subcontractor, subcontractor's overhead in the amount of 5% may be added to the cost of labor and materials if method (a), (c), (d), and (e) is used and to the cost of labor and materials plus overhead there may be added 10% for the subcontractor's profit. No percentage for overhead and profit will be allowed on payroll taxes or on the premium portion of overtime pay. However, to the extent that the aggregate dollar value of Orders on Contract exceeds \$75,000, the 10% overhead applied to total costs of labor and materials incurred by the prime Contractor shall be reduced to 5%. In addition, on all individual Orders of Contract in excess of \$75,000, the overhead shall be no more than 5% of the total actual cost of labor and materials incurred by the Contractor, and the combined Contractor's overhead and profit allowance applied to subcontract billings shall be no more than 5%.
- 11.10 The Director shall determine by which of the foregoing methods of value of any changes shall be computed.
- 11.11 In computing the value of an Order on Contract which involved additions and deductions of Work and the added Work exceeds the omitted Work, overhead and profit shall be computed on the amount by which the cost of additional labor material exceeds the cost of the omitted labor and material, except no additional overhead and profit shall be allowed on value of work determined by method (b) or (f).
- 11.12 In computing the value of an Order of Contract which involves deductions and additions of Work and the omitted work exceeds the added Work, the Contractor will be allowed to retain the overhead and profit on the amount by which the omitted Work exceeds the added Work, except that no overhead and profit shall be retained on value of Work determined by method (b) or (f).
- 11.13 The Contractor may retain overhead and profit on an Order of Contract which involved deductions only, except that no overhead and profit shall be considered on value of Work determined by method (b) or (f).

ARTICLE 12 – SITE CONDITIONS

- 12.1 If the Contractor encounters subsurface or other latent physical conditions at the Site which differ substantially from those shown, described or indicated in such information provided in the Contract Documents or from any information which is a public record and which subsurface or other latent physical condition could not have been reasonably anticipated from that information or from the Contractor's own inspection and

examination of the Site, the Contractor shall give immediate written notice to the Director's Representative before any such condition is disturbed. The Director's Representative shall promptly investigate and, if it is determined that the conditions substantially differ from those that should have been reasonably anticipated, shall make such changes in the Contract Documents as may be required. If necessary, the Contract sum and completion date shall be adjusted by Change Order, to reflect any increase or decrease in the cost of, or time required for, performance of the Contract.

- 12.2 The Contractor shall protect trees, shrubbery and other natural features or structures within the Premises from being cut, trimmed, or injured, unless directed by the Director's Representative for preparing the Site for the Work. The Contractor shall prevent employees from tramping in the shrubbery and vehicles from being driven through wooded lands. When necessary, the Contractor shall protect trees adjacent to the premises in a matter satisfactory to the Director's Representative.
- 12.3 The Contractor shall provide and replant at its own expense trees, shrubbery, and other natural features destroyed or damaged. The Contractor shall conduct its operations within the Premises as directed by the Director's Representative.

ARTICLE 13 – SUSPENSION OF WORK

- 13.1 Suspension of Work: The Director may order the Contractor in writing to suspend, delay, or interrupt performance of all or any part of the Work for a reasonable period of time as the Director, in his or her sole discretion, may determine ("Suspension Order"). The order shall contain the reason or reasons for issuance that may include but shall not be limited to the following: latent field conditions, substantial program revisions, civil unrest, acts of God.
 - 13.1.1 Upon receipt of a Suspension Order, the Contractor shall, as soon as practicable, cease performance of the Work as ordered and take immediate affirmative measures to protect such Work from loss or damage.
 - 13.1.2 The Contractor specifically agrees that a suspension, interruption or delay of the performance of the Work pursuant to this Article shall not increase the cost of performance of the Work of this Contract.
 - 13.1.3 A Suspension Order issued by the Director pursuant to this Article shall have duration not to exceed 30 days. If the Contractor is not directed to resume performance of the Work affected by said Suspension Order prior to the expiration of 30 days, the Contract may be terminated for the convenience of the State and the Contractor shall be reimbursed as provided by Article 15.
- 13.2 Stop Work Orders: If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents,

the Director's Representative may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Director's Representative to stop the Work shall not give rise to any duty on the part of the Director's Representative to exercise this right for the benefit of Contractor or any other party.

13.2.1 Contractor shall bear all direct, indirect and consequential costs of such order to Contractor to stop Work including but not limited to fees and charges of engineers, architects, attorneys and other professionals, any additional expenses incurred by the Office due to delays to others performing work under a separate contract with the Director's Representative, and other contractual obligations, and Contractor shall further bear the responsibility for maintaining schedule and shall not be entitled to any extension of contract time or recovery of any delay damages due to the order to stop Work.

13.2.2 In the event that Contractor fails to pay such costs within thirty days after receipt of an invoice from Office, a Change Order or proposed Change Order may be issued incorporating the unpaid amount as an appropriate reduction in the Contract Price. If the parties are unable to agree as to the amount thereof, the Contractor may make a claim therefore as provided in Article 11 of the General Conditions.

ARTICLE 14 – TIME OF COMPLETION AND TERMINATION FOR CAUSE

14.1 All time limits set forth in this Contract are of the Essence. Failure by the Contractor to meet with the Contract deadlines shall be cause for the Office to assess Liquidated Damages.

14.2 Termination for Cause. In addition to all other rights of termination provided by law and in this Contract, if any one or more of the following events shall occur, that is to say.

14.2.1 If Contractor commences a voluntary case under any chapter of the Bankruptcy Code, as now or hereafter in effect, or if Contractor takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency;

14.2.2 If a petition is filed against Contractor under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against Contractor under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

14.2.3 If Contractor makes a general assignment for the benefit of creditors;

14.2.4 If a trustee, receiver, custodian or agent of Contractor is appointed under applicable law or under contract, whose appointment or authority to take charge

of property of Contractor is for the purpose of enforcing a lien against such property or for the purpose of general administration of such property for the benefit of Contractor's creditors;

- 14.2.5 If Contractor admits in writing an inability to pay its debts generally as they become due;
- 14.2.6 If Contractor fails to perform the Work in accordance with the Contract Documents, including, but not limited to, failure to supply sufficient skilled workers, or suitable materials or equipment, or failure to adhere to the progress schedule established under Article 5.1 as revised from time to time or failure to submit an updated schedule as required by Article 5.2;
- 14.2.7 If Contractor disregards the authority of the Director's Representative;
- 14.2.8 If Contractor filed certification in accordance with New York State Finance Law § 139-k which was intentionally false or intentionally incomplete;
- 14.3 If in the judgment of the Director, the Contractor fails or refuses to prosecute the Work in accordance with the Contract, or fails to complete the Work within the time provided by the Contract, the Director may terminate the Contract by written notice to the Contractor in the manner set forth in Article 28.2 herein and to the Surety in the manner set forth in the Performance Bond. In such event, the Director shall direct the Surety to complete the Work. If the Surety fails or refuses to complete the Work, the Director may take over the Work and prosecute it to completion by contract publicly let or otherwise, and may take possession of and utilize in completing the Work, such of the Contractor's materials, equipment and plant as may be on the Site of the Work. Whether or not the right to terminate is exercised, the Contractor and the Surety shall be liable for any damage to the State resulting from the Contractor's failure or refusal to complete the Work in accordance with the Contract or his or her failure to complete the Work within the time provided by the Contract.
- 14.4 If the Director terminates the Contract for failure to prosecute the Work, in addition to any damages provided for by law, the delay shall occasion the payment of damages by Contractor which shall consist of Liquidated Damages until the Work is physically completed, plus any increased costs the Office incurs in completing the Work.
- 14.5 The Contract shall not be so terminated nor the Contractor charged with resulting damage if:
 - (a) The delay in the completion of the Work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor including, but not restricted to, acts of God, acts of the public enemy, acts of another Contractor in the performance of a contract with the Office, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather, or delays of subcontractors or suppliers arising from unforeseeable causes beyond the control

and without the fault or negligence of both the Contractor and such subcontractors or suppliers; and

- (b) The Contractor shall notify the Director's Representative in writing of the causes of delay within fifteen (15) days from when the Contractor knew or ought to have known of any such delay.
- 14.6 The Director's Representative will ascertain the facts and the extent of the delay and extend the time for completing the Work when, in the Director's Representative's judgment, the findings of fact justify such an extension, and his or her findings of fact shall be final and conclusive unless within twenty (20) Days from the date of receipt of the decision, the Contractor serves upon the Director a written appeal by certified mail. Upon appeal, the decision of the Director shall be final and conclusive.
- 14.7 If after notice of termination of the Contract, it is determined for any reason that the Contractor was not in default or that the delay was excusable, the rights and obligations of the parties shall be the same as if the notice of termination had been issued pursuant to the termination for convenience clause.
- 14.8 The rights and remedies of the Office provided in this clause are in addition to any other rights and remedies provided by law or under this Contract, provided that damages for delay incurred by the Contractor shall be as specified in Articles 14.3 and 14.4.
- 14.9 The Office reserves the right to terminate this Contract in the event it is found that the certification filed by the Contractor in accordance with New York State Finance Law §139-k was intentionally false or intentionally incomplete. Upon such finding, the Office may exercise its termination right by providing written notification to the Contractor in accordance with the written notification terms of the Contract.
- 14.10 Liquidated Damages: The work represented in this Contract is part of a comprehensive program, undertaken by the Office on behalf of the People of the State of New York in the belief that the expenditures are justified by the benefits which accrue to the public. If the public does not get the full and complete use of facilities for which the expenditures are made, a resulting financial loss cannot be exactly computed. Accordingly, a deduction, indicated below or in the Notice to Bidders, will be made from the Contract price for every calendar day after the completion date specified in the Contract Documents for which the Contract is not completed in every detail. Said sum, because of the difficulty in determining accurately the loss to the State, is hereby fixed and agreed as the Liquidated Damages that the State will suffer by reason of such delay, and not as a penalty; such Liquidated Damages, as defined for this Project, are understood and agreed to be the actual cost of all extra inspection, salaries of contingent force, and other engineering expenses entailed upon the State as a result of such delay. The Liquidated Damages set forth herein apply only to a delay in completion of the Project and in no way are such damages to be interpreted as being the Office's exclusive remedy under the Contract or in Law.

SCHEDULE OF LIQUIDATED DAMAGES		
Original Total Contract Bid Price		Liquidated Damages per Calendar Day
From More Than	To and Including	
\$0	\$100,000	\$500
\$100,000	\$500,000	\$1,000
\$500,000	\$1,000,000	\$1,500
\$1,000,000	\$2,000,000	\$1,750
\$2,000,000	\$5,000,000	\$2,000
\$5,000,000	\$10,000,000	\$2,500
\$10,000,000	\$20,000,000	\$4,000
\$20,000,000		\$7,000

14.11 Contractor Responsibility:

- (a) Contractor shall at all times during the contract term remain a responsible vendor. Contractor agrees, if requested by State Parks, to present evidence of its continuing legal authority to do business in New York State, its integrity, experience, ability, prior performance and organizational and financial capacity to carry out the terms of this contract.
- (b) State Parks reserves the right to suspend any or all activities under this contract, at any time, when State Parks discovers information that calls into question the responsibility of Contractor. In the event of such suspension, Contractor will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, Contractor must comply with the terms of the suspension order. Contractual activities may resume at such time as State Parks issues a written notice authorizing resumption of contractual activities.
- (c) Notwithstanding the provision of Article 14 of the contract pertaining to Termination and Revocation, upon written notice to Contractor and a reasonable opportunity to be heard with appropriate State Parks' staff, this contract may be terminated by State Parks at Contractor's expense where Contractor is determined by State Parks to be non-responsible. In such event, State Parks may pursue available legal or equitable remedies for breach.

ARTICLE 15 – TERMINATION OF CONTRACTOR’S EMPLOYMENT FOR THE CONVENIENCE OF THE STATE OF NEW YORK

- 15.1 The Director may terminate this Contract whenever in the Director's judgment the public interest so requires by delivering to the Contractor a notice of termination specifying the extent to which performance of Work under the Contract is terminated and the date upon which such termination becomes effective. Upon receipt of the notice of termination, the Contractor shall act promptly to minimize the expenses resulting from such termination. The Office shall pay the Contractor the sum of:
- (a) The costs actually incurred up to the effective date of such termination,
 - (b) The cost of settling and paying claims arising out of the termination of Work under subcontracts or orders exclusive of the amounts paid or payable on account of supplies or materials delivered or services furnished by the subcontractor prior to the effective date of the Notice of Termination of Work under this Contract, which amounts shall be included in the cost on account of which payment is made under (a) above, and
 - (c) The rate of profit and overhead on (a) and (b) as prescribed in Division 01- General Requirements. If the Contractor would have sustained a documentable loss on the entire Contract had it been completed, no profit shall be included or allowed under this subparagraph and an appropriate adjustment shall be made reducing the amount of the settlement to reflect the indicated rate of loss.
- 15.2 In no event shall the Contractor's compensation exceed the total Contract amount.
- 15.3 The amount of progress payments made to the Contractor prior to the date of termination was effective shall not be conclusive evidence of costs incurred, but progress payments shall be offset against any payment which the Office makes to the Contractor as a result of such termination.

ARTICLE 16 – DISPUTES

- 16.1 The Contractor shall submit notice of any dispute relating to the performance of this Contract to the Director’s Representative no more than fifteen (15) days after he or she knew or should have known of the facts which are the basis of the dispute. The notice shall be in writing and shall be transmitted:
- i. via certified or registered United States mail, return receipt requested;
 - ii. by facsimile transmission;
 - iii. by personal delivery;

- iv. by expedited delivery service; or
- v. by e-mail.

- 16.2 The Director's Representative shall acknowledge receipt of such notice by providing written acknowledgement to the Contractor; however, failure to provide written acknowledgment shall not be a breach of contract or in any way alter the Contractor's obligation to provide timely notice. The Contractor's notice shall identify the nature of the dispute; identify the person who rendered the decision or interpretation involved, and the date of the decision or interpretation with which the Contractor disputes, attaching a copy of such decision or interpretation; contain a statement of the contractual basis for the dispute; and identify the relief sought. The Contractor shall have a continual duty to promptly provide the Director's Representative with up to date information related to the dispute.
- 16.3 The Contractor agrees that Article 16 does not apply to any dispute which involves delay (see Article 14), acceleration, interference or any other act or omission constituting a breach of contract; any matter relating to extensions of time, bonuses or liquidated damages; to the value of any order on contract or field order; determination of Substantial Completion, determination that Punch List items have been completed, or to any termination for cause or convenience.
- 16.4 The Director's Representative shall reduce his or her decision to writing and furnish a copy thereof to the Contractor. The decision of the Director's Representative shall be final and conclusive unless within twenty (20) Days from the date of receipt of the decision, the Contractor serves upon the Director a written appeal by certified mail.
- 16.5 Upon appeal, the decision of the Director shall be final and conclusive. In connection with any appeal proceeding held pursuant to this Article, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of his or her appeal. Pending final determination of a dispute hereunder, the Contractor shall proceed diligently with the performance of the Contract in accordance with the Director's Representative's decision. Nothing in this Contract shall be construed as making final the decision of any administrative official upon a question of law.

ARTICLE 17 – STATUTORY REQUIREMENTS FOR THE UTILIZATIONS OF MINORITY AND WOMEN OWNED BUSINESS ENTERPRISES

- 17.1 Pursuant to Section 313 of Article 15-A of the Executive Law of the State of New York, the Director of the Division of Minority and Women's Business Development has promulgated rules and regulations (Parts 140 through 145 of Subtitle N of Title 9 New York Code of Rules and Regulations) (the "Regulations") for the purposes of ensuring that certified Minority and Women owned Business Enterprises shall be given the opportunity for meaningful participation in the performance of State contracts and to facilitate the award of a fair share of State contracts and subcontracts to such business enterprises.

- 17.2 The Contractor shall make a good faith effort to solicit active participation in the Work by enterprises identified in the directory of certified businesses obtainable from the Division of Minority and Women's Business Development, New York State Department of Economic Development.
- 17.3 The Contractor agrees, as a material condition of this contract, to be bound by the provisions of Section 316 of Article 15-A of the Executive Law of the State of New York, which relates to the resolution of disputes, which may arise under this Article.
- 17.4 The Contractor agrees to include the provisions of Articles 17.2 and 17.3 of these General Conditions in every subcontract it enters into as to Work in connection with this Contract in such a manner that the provisions will be binding upon such Subcontractor. However, the provisions of this paragraph shall not be binding upon the Contractor or its subcontractors in the performance of work or the provision of services that are unrelated, separate or distinct from this Contract as expressed by its terms.
- 17.5 The Regulations referred to in Article 17.1 of these General Conditions require, among other things, that a bidder or proposer for a State contract submit a utilization plan which shall identify certified Minority or Women Owned Business Enterprises which the bidder/proposer intends to use in connection with the performance of the proposed State contract. Such a utilization plan shall be submitted after bids are opened but prior to contract award.
- 17.5.1 Pursuant to the Regulations: (1) the Commissioner may require the submission by the Contractor of compliance reports relating to the implementation of and adherence to the utilization plan in performing the Contract; (2) the Commissioner shall allow the Contractor to apply for a partial or total waiver of the Minority and Women Owned Business participation requirements; (3) the Contractor may file a complaint with the Executive Director of the Division of Minority and Women's Business Development regarding a denial of a request for waiver of Minority and Women Owned Business participation requirements; (4) the Commissioner may file a complaint with the Executive Director of the Division of Minority and Women's Business Development in the event the Contractor fails to comply with the Minority and Women Owned Business participation requirements set forth in this Contract; and (5) the Commissioner may disqualify the Contractor's bid or proposal as being non-responsive for failure to remedy notified deficiencies contained in the Contractor's utilization plan after an administrative hearing on the record, reviewing all grounds for disqualification stated by the Commissioner and taking into consideration all the criteria set forth in Section 313 of the Executive Law.
- 17.5.2 The Contractor is referred to the entirety of the provisions of Section 316 of Article 15-A of the Executive Law of the State of New York and of the Regulations for the Contractor's full familiarization with their applicable provisions as terms of this Contract.

ARTICLE 18 – SUBCONTRACTS

- 18.1 Before any part of the Contract shall be sublet, the Contractor shall submit to the Director's Representative in writing the name of each proposed Subcontractor and supplier and obtain the Director's Representative's written consent to such Subcontractor and supplier. The names shall be submitted in ample time to permit acceptance or rejection of each proposed Subcontractor by the Director's Representative without causing delay in the work of the Project.
- 18.2 If the value of the Subcontract is \$10,000 or more, the Contractor shall promptly furnish a "NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR PROFIT CONSTRUCTION (CCA-2)" for each Subcontractor and receive approval of the same prior to delivery of materials or performance of work from this Subcontractor.
- 18.3 The Contractor's use of subcontractors shall not diminish the Contractor's obligations to complete the work in accordance with the Contract. Each Contractor shall control and coordinate the work of his or her Subcontractors.
- 18.4 The Contractor shall be responsible for informing the Subcontractors of all the terms, conditions and requirements of the Contract Documents including, but not limited to the General Conditions and the Detailed Specifications.

ARTICLE 19 - COORDINATION OF SEPARATE CONTRACTS (WICKS PROJECTS)

- 19.1 The Office may award other contracts related to the Work. In that event, the Contractor shall coordinate his or her work with the Work of other contractors in such manner as the Office may direct. All contractors shall exchange working drawings, examine them and report any interferences or objections to the Director's Representative, in order to avoid delays. Each contractor shall control and coordinate the work of his or her Subcontractors, if any. The Office shall approve or require the modification of the work schedules of all contractors to the end that the Project may be progressed as expeditiously as the case permits.
- 19.2 If any part of the Work depends for proper execution or results upon the work of any other contractor, the Contractor shall inspect and promptly report in writing to the Director's Representative any defects in such work. The failure to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of the Contractor's Work.
- 19.3 The Director's Representative shall issue appropriate directions and take such other measure to coordinate and progress the Work as may be reserved to the Office in the Contract, and which an ordinarily reasonable project owner in similar circumstances would be expected to take. However, the Office shall not be liable for mere errors in judgment as

to the best course of action to adopt among the alternatives available in any given instance.

- 19.4 The award of more than one contract for the Project requires sequential or otherwise interrelated contractor operations, and will involve inherent coordination in the progress of any individual contractor's work. Accordingly, the Office cannot guarantee the unimpeded operations of any contractor. The Contractor acknowledges these conditions, and understands that he or she shall bear the risk of all ordinary delays caused by the presence or operations of other contractors engaged upon the project, and ordinary delays attendant upon any Office approved construction schedule. Should a contractor sustain damage through any act or omission of any other contractor, the contractor shall have no claim against the Office.
- 19.5 The Office shall not be liable for ordinary delays in any case nor for extraordinary delays that occur due to any contractor's failure to comply with directions of the Office or because of the neglect, failure or inability of any contractor to perform his or her work efficiently.
- 19.6 Any claim for extraordinary delay caused by an allegedly unreasonable or arbitrary act, or failure to act, by the Director's Representative in the exercise of his or her responsibility for supervision and coordination of the Work, shall be waived, released and discharged unless the Contractor whose work is impeded or delayed thereby, shall give notice in writing to the Director's Representative as promptly as possible and in sufficient time to permit the Director's Representative to investigate appropriate instructions.
- 19.7 The neglect or refusal of a Contractor to comply with supervisory directions issued by the Director's Representative pursuant to his or her responsibility for supervision of the Work shall constitute a failure to progress the work diligently in accordance with the Contract requirements and shall justify withholding payments otherwise due, or termination of the Contract as detailed in Article 15.
- 19.8 The Contractor shall indemnify the Office for damages recovered against the Office by another contractor to the extent that any such claim or judgment is the proximate cause of the Contractor's failure to progress the work in accordance with Contract requirements.

ARTICLE 20 – RESPONSIBILITY FOR DAMAGE AND INDEMNIFICATION

- 20.1 The Contractor shall faithfully perform and complete all of the work required by the Contract, and has full responsibility for the following risks:
- (a) Loss or damage, direct or indirect; to the Work including the building or structure in which the Work is being performed, or any other construction in progress, whether being performed by any other contractor or by the Office, or to any plant, equipment, tools, materials or property furnished, used, installed, or received by the Director's Representative under this Contract or any other contract. The Contractor shall bear all such risk of loss or damage, until all of the Work covered by the Contract has been finally accepted. In the event of such loss or damage, the

Contractor shall forthwith repair, replace, and make good any such loss or damage without additional costs.

- (b) Injury to persons (including death resulting therefrom), or damage to property caused by an occurrence arising out of the performance of this Contract for which the Contractor may be liable under any theory of law.

- 20.2 Contractor assumes all risks in the performance of all activities authorized by this Contract and agrees to defend, indemnify and hold harmless the People of the State of New York, the Office, their officers, employees, agents and assigns (hereinafter, collectively the "Indemnitees") from and against any and all claims, suits, losses, damage or injury to persons or property of whatsoever kind and nature, whether direct or indirect, caused or contributed to by Contractor and Contractor's sub-contractors, vendors, material suppliers, employees, agents, invitees and guests, and/or arising out of Contractor's conduct and/or Contractor's performance pursuant to this Contract, provided however that Contractor's indemnity shall not extend to any claims, liabilities, losses, damages, expenses, accidents or occurrences arising out of, relating to, or in connection with: (i) the negligence of any Indemnatee; or (ii) the Indemnitees' ordinary upkeep and maintenance of the Park and its grounds and facilities outside of the Premises. Contractor shall defend at its sole cost and expense any action commenced for the purpose of asserting any claim of whatsoever character arising out of this Contract. Contractor's responsibility under this section shall not be limited to the required or available insurance coverage.
- 20.3 For all purposes hereunder, the Office shall not be liable for any injury, loss or damage to Contractor, its agents, servants, sub-contractors, vendors, invitees and guests, or to any person happening on, in or about the Premises or its appurtenances, nor for any injury or damage to the Premises or to any property belonging to Contractor or to any other person, that may be caused by fire, theft, breakage, vandalism or any other use or misuse or abuse of any portion of the Premises, including but not limited to any common areas, sidewalks, roads, or water in or adjacent to the Premises, or that may arise from any other cause whatsoever, unless, and only to the extent of the proportion of which any such injury, loss or damage is determined to be caused by the negligence of the Office.
- 20.4 The Office shall not be liable to Contractor, its agents, contractors, vendors, invitees and guests, or any other person, for any failure of water supply, gas supply or electric current, nor for any injury or damage to any property of Contractor or any other person or to the Premises, caused by or resulting from spill or release of gasoline, oil, steam, gas, or electricity, or caused by leakage of any substance from pipes, appliances, sewers or plumbing works, or caused by hurricane, flood, tornado, wind or similar storm or disturbance, or caused by water, rain or snow that may leak or flow from the street, sewers or subsurface areas, or from any part of the Premises or any body of water within or adjacent to the Premises, or caused by any public or quasi-public work, unless, and only to the extent of the proportion by which any such injury, loss or damage is determined to be caused by the negligence of the Office.
- 20.5 The Office may retain such monies from the amount due the Contractor as may be

necessary to satisfy any claim for damages recovered against the State. The Contractor's obligations under this paragraph shall not be deemed waived by the failure of the Office to retain the whole or any part of such monies due the Contractor, nor shall such obligation be deemed limited or discharged by the enumeration or procurement of any insurance for liability for damages imposed by law upon the Contractor, Subcontractor or the State.

- 20.6 The Contractor agrees to make no claim for damages in the performance of the Contract occasioned by any act or omission to act of the Office or its representatives, and agrees that any such claim shall be fully compensated for by an extension of time to complete performance of the Work as provided herein.
- 20.7 The Contractor shall not create or cause to be created any lien, encumbrance or charge upon the Premises, the Office or any part thereof. If any mechanics, laborers or similar statutory or common law lien (including tax liens, provided that the underlying tax is an obligation of Contractor by law or by a provision of this Contract) caused or created by Contractor is filed against the Premises, or if any public improvement lien created or caused to be created by Contractor is filed against any assets of, or funds appropriated by the Office, then Contractor shall, within forty-five (45) days after receipt of notice of the lien, cause it to be vacated or discharged of record by payment, deposit, bond, court order, or otherwise. However, Contractor shall not be required to discharge any such lien if Contractor shall have: (i) furnished the Office with, at Contractor's option, a cash deposit, bond, letter of credit (from an institutional lender in a form satisfactory to the Office), or other security reasonably satisfactory to the Office in an amount sufficient to discharge the lien and all applicable interest, penalties and/or costs; and (ii) brought an appropriate legal proceeding to discharge the lien and is prosecuting such proceeding with diligence and continuity; except that if despite Contractor's efforts to discharge the lien the Office reasonably believes the lien is about to be foreclosed and so notifies Contractor, Contractor shall immediately cause such lien to be discharged of record or the Office may use the security furnished by Contractor in order to discharge the lien.

ARTICLE 21 - INSURANCE

21.1 General Requirements

- (a) Insurance coverage shall be provided only by an insurance carrier rated A-, Class VII or better throughout the term of this Contract. Such carrier shall be duly licensed in the State of New York.
- (b) All insurance policies and certificates shall include the following provision: "Consistent with the requirements of Contract D00XXXX, the People of the State of New York are additional insureds". Simply designating State Parks as a "certificate holder" shall not constitute compliance with this section.
- (c) All insurance coverage shall be written such that the Director's Representative is afforded at least thirty (30) days prior notice of cancellation of any insurance. No

policy shall be changed by endorsement without the knowledge and consent of the Director's Representative, and, in particular, any notice of cancellation by the insurer shall not be effective until 30 days after the said notice is actually received by the Director's Representative. Any notice shall be addressed to the Director's Representative and shall be mailed via certified or registered mail and copied to the Office's General Counsel as set forth in Article 28.2.

- (d) Before commencing the Work, the Contractor shall furnish to the Director's Representative a certificate or certificates of insurance showing that the Contractor has complied with this clause. In addition, for policies expiring on a fixed date before final acceptance, certificates of insurance showing their renewal must be filed not less than 30 days before such expiration date.
- (e) Contractor shall notify State Parks of any accidents and/or claims, including without limitation accidents or claims involving bodily injury, death or property damage, arising on or within the Premises. Such notice shall be provided in writing as soon as practicable, however in any event within five days of Contractor's receipt of notice of the accident or claim.

21.2 Liability Insurance

- (a) The Contractor shall procure at its sole cost and expense insurance with limits not less than those described below for liability for damages imposed by law, of kinds and in amounts satisfactory to the Office, covering all operations under the Contract whether performed by the Contractor or by subcontractors. Limits may be provided through a combination of primary and umbrella/excess policies.
- (b) Unless otherwise specifically provided for in the Detailed Specifications the amounts of such insurance shall be no less than \$1,000,000 combined (bodily injury and property damage) single limit per occurrence and \$2,000,000 combined in the aggregate.
- (c) Coverage shall include the following:
 - i. Contractor's Liability Insurance (including contractual liability) and Contractor's Protective Liability issued to protect the Contractor from any suits, actions, damages and costs of every name and description, with respect to all Work performed by the Contractor and his or her subcontractors under the agreement;
 - ii. Owners Protective Liability Insurance issued to protect The People of the State of New York and the Office and their officers and employees, with respect to all operations under the agreement by the Contractor or by his or her Subcontractors, including omissions and supervisory acts of the Office; and

- iii. Completed Operations/Products Liability Insurance covering liability for damages arising between the date of final cessation of the Work and the date of final acceptance of the Work by the Office.

21.3 Builder's Risk Insurance.

- (a) The Contractor shall maintain builder's risk insurance for the completed value of the Contract on the All Risk Form. Builder's Risk insurance applies only to contracts that involve buildings or structures being constructed, erected or fabricated.
- (b) In case the Office shall occupy all or any part of any building or buildings included in the Contract prior to the issuance of the final certificate of occupancy, the Contractor shall notify the fire insurance company or companies. Such occupancy by the Office shall not require consent of the insurer nor shall the insurer require any rate adjustment as a result of such occupancy.

21.4 Worker's Compensation. Proof of Compliance with Workers' Compensation Coverage Requirements: An ACORD form is NOT acceptable proof of workers' compensation coverage. A contractor seeking to enter into a contract with the Office shall provide one of the following forms prior to award:

Form CE-200, Certificate of Attestation for New York Entities with No Employees and Certain Out of State Entities, That New York State Workers' Compensation and/or Disability Benefits Insurance Coverage is Not Required.

Form C-105.2 (9/07) if coverage is provided by the contractor's insurance carrier, contractor must request its carrier to send this form to the Office, or

Form U-26.3 if coverage is provided by the State Insurance Fund, contractor must request this be sent to the Office

Form SI-12 Certificate of Workers' Compensation Self-Insurance

Form GSI-105.2 Certificate of Participation in Workers' Compensation Group Self Insurance

21.5 Disability Benefits. Proof of Compliance with Disability Benefits Coverage Requirements: An ACORD is NOT acceptable proof of disability benefits coverage. A contractor seeking to enter into a contract with the Office shall provide one of the following forms prior to award:

Form CE-200, Certificate of Attestation for New York Entities with No Employees and Certain Out of State Entities, That New York State Workers' Compensation and/or Disability Benefits Insurance Coverage is Not Required.

Form DB-120.1, Certificate of Disability Benefits Insurance

Form DB-155, Certificate of Disability Benefits Self Insurance

ARTICLE 22 - COMPLETION AND ACCEPTANCE

- 22.1 The Office shall have the right to take possession of or use any completed or partially completed portion of the Work. Written notice of such possession shall be given to the Contractor by the Director's Representative. The notice shall identify the date when such possession shall commence and the area, equipment or system involved. Written notice shall also be given to the Contractor for any cessation of such possession by the State. Such possession or use shall not be deemed an acceptance of any Work. While the State is in such possession, the Contractor, notwithstanding the provisions of Article 20 of the Contract, shall be relieved of the responsibility for the risk of loss or damage to the Work except for that resulting from the Contractor's fault or negligence. If such possession or use by the State delays the progress of the Work or causes additional expense to the Contractor, an adjustment in the Contract price and/or the time of completion shall be made and the Contract modified in writing accordingly. The provisions relating to an adjustment in the Contract price or the time of completion contained in this paragraph shall not apply to occupancy or possession after Substantial Completion.
- 22.2 Contractor will notify the Director's Representative in writing when Contractor believes that the Work is Substantially Complete and request that the Director's Representative issue a Certificate of Substantial Completion. Contractor shall prepare and submit at the same time as the notice required in this Article 22.2, an initial list of items to be completed or corrected before final payment.
- 22.3 Upon receipt of the Contractor's list, the Director's Representative or their designee will inspect the Work to determine whether the Work is Substantially Complete in their sole discretion. Such determination shall not be subject to any dispute provisions available under this Contract.
- 22.3.1 If Director's Representative or their designee determines that the Work is not Substantially Complete, the Director's Representative will notify the Contractor in writing of the Work that must be sufficiently complete to deem the Work Substantially Complete. Contractor will promptly complete all Work contained within that notice and follow the same process set forth in this Article for notifying Director's Representative upon such completion.
- 22.3.2 If the Director's Representative or their designee determines that the Work is Substantially Complete, the Director's Representative will deliver to the Contractor a Certificate of Substantial Completion setting forth the date of Substantial Completion and Punch List. The Punch List may include Work additional to or removed from the Contractor's initial list provided under Article 22.2.
- 22.3.3 Upon issuance of the Certificate of Substantial Completion, Contractor shall submit a payment application for Substantial Completion under Article 23.6.
- 22.4 The Director's Representative will update the Punch List as the remaining items of Work are satisfactorily completed or corrected.
- 22.5 Contractor will notify the Director's Representative in writing when the Contractor believes that all items on the Punch List have been completed or corrected.
- 22.6 Upon receipt of the Contractor's notification that the Punch List has been

completed, the Director's Representative or their designee will inspect the Punch List items to determine whether the Punch List has been completed. Such determination shall not be subject to any dispute provisions available under this Contract

22.6.1 If Director's Representative or their designee determines that the Punch List is not completed, the Director's Representative will notify the Contractor in writing of the Punch List items that must be completed or corrected to deem the Punch List completed. Contractor will promptly complete all items contained within that notice and follow the same process set forth in this Article for notifying Director's Representative upon such completion.

22.6.2 If the Director's Representative or their designee determines that the Punch List is completed, the Director's Representative will deliver to the Contractor a Certificate of Acceptance setting forth the Physical Completion Date.

22.6.3 Upon issuance of the Certificate of Acceptance, Contractor shall submit a payment application for final payment under Article 23.7.

ARTICLE 23 – PAYMENT

23.1 The Contractor may submit monthly payment applications, or more frequently if permitted by making a request in writing to the Director's Representative, a requisition for a progress payment for Work performed and materials furnished to the date of the requisition, less any amount previously paid to the Contractor. Except as otherwise provided by this Contract, the Director's Representative shall approve and pay the requisition for the progress payment less an amount necessary to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged and less any amount authorized by law or Contract to be retained. The requisition shall be in such form and supported by such evidence as the Director's Representative may reasonably require.

23.2 The Contractor agrees that, if the Contract Documents for this Contract includes Performance and Payment Bonds, the State shall retain five percent of the amount of each progress payment in accordance with Section 139-f of the State Finance Law. The Contractor further agrees that, if the Contract Document for this Contract do not include Performance and Payment Bonds, the State shall retain ten percent of the amount of each progress payment in accordance with Section 139-f of the State Finance Law.

23.3 All requisitions for payments shall be submitted to the designated payment office. The designated payment office shall notify the Contractor of any defect in any requisition within twenty (20) days of the receipt of such requisition and shall complete the review and audit of each complete requisition within forty-five (45) days of receipt thereof.

23.4 The Director's Representative may refuse to approve the requisition or a portion thereof if in the Director's Representative's judgment the Contractor is failing or refusing to prosecute the Work in accordance with the Contract.

- 23.5 Payment may be made for approved materials not yet incorporated in the Work in accordance with the Schedule of Values and Section 139(f) of the State Finance Law. Requisitions, which require payment for materials, shall be accompanied by a notarized statement certifying that the materials for which payment is requisitioned are the Contractor's property and have been suitably stored and insured. The Contractor shall provide such evidence of the value of the material stored as the Director's Representative may reasonably require. The Contractor shall have full continuing responsibility to insure and protect such materials and maintain them in proper condition to fulfill Contract requirements when installed.
- 23.6 When the Work is Substantially Completed, the Contractor shall submit to the Director's Representative a requisition for payment of the remaining amount of the Contract balance. The Contractor shall attach a copy of the Certificate of Substantial Payment to such requisition. Upon receipt of such requisition the Director's Representative shall, except as otherwise provided by this Contract, approve and pay the remaining amount of the Contract balance less two times the value of any remaining items identified on the Punch List, and an amount necessary to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged. As the remaining items of Work are satisfactorily completed or corrected, the Director's Representative shall approve, upon receipt of a requisition, for these remaining items less an amount necessary to satisfy any claims, liens or judgments against the Contractor, which have not been suitably discharged.
- 23.7 When the Punch List is completed, the Contractor shall submit to the Director's Representative a requisition for final payment. The Contractor shall attach a copy of the Certificate of Acceptance to such requisition. The final payment will not be issued until all the labor and material required by the Contract has been furnished and completed, all disputes relating to the performance of the Contract considered and disposed of and all accounts for extra work and materials and allowances for omissions have been rendered and considered.
- 23.8 The final payment will constitute the acceptance of the Work by the Office except as to Work thereafter found to be defective. The date of the Certificate of Acceptance shall be regarded as the date of acceptance of the Work.
- 23.9 No payment will be made to a foreign Contractor until the Contractor furnishes satisfactory proof that he or she has paid all taxes required of foreign Contractors under the provisions of the Tax Law. A foreign Contractor as used in this paragraph shall mean a Contractor denominated "foreign" by the Tax Law.
- 23.10 Acceptance by the Contractor, or by anyone claiming by or through him or her, of the final payment shall constitute and operate as a release to the State from any and all claims of any liability to the Contractor for anything theretofore done or furnished for or relating to or arising out of the work done thereunder, and for any prior act, neglect, or default on the part of the State or any of its officers, agents, or employees unless the Contractor serves a detailed and verified statement of claim upon the Office not later than 40 days after the mailing of such final payment. Such statement shall specify the items and details upon which the claim will be based and any such claim shall be limited to such items. Should the

Contractor refuse to accept the final payment as tendered by the Comptroller, it shall constitute a waiver of any right to interest thereon.

- 23.11 The Contractor is advised that consistent with Subdivision 3-a, of Section 220 of the Labor Law, the filing of certified payroll records is a condition precedent to payment of any sums due and owing to any person performing work on this project. The failure to file pursuant to this section will result in a payment delay until the filing occurs.
- 23.12 The Contractor acknowledges that it shall not receive payment on any requests for payment unless the Contractor complies with the Comptroller's electronic payment deposit procedures. Payments requested by the Contractor shall only be facilitated via electronic deposit, except where the Commissioner has expressly authorized payment by paper check.

ARTICLE 24 – AUDITS AND RECORDS

- 24.1 The Contractor shall maintain on the Site the original certified payrolls or certified transcripts thereof, subscribed and affirmed by the Contractor and all Subcontractors as true under the penalties of perjury, showing the hours and days worked by each worker, laborer or mechanic, the occupation at which he or she worked, the hourly wage rate paid and the supplements paid or provided. The Contractor shall maintain with the payrolls or transcripts thereof, the statements signed by each worker pursuant to Article 25 of the General Conditions.
- 24.2 The Director's Representative, the Comptroller and their representatives who are employees of the State shall have the right to examine all books, records, documents, and other data of the Contractor, any Subcontractor, materialmen or suppliers relating to the bidding, pricing or performance of this Contract or any change or modification thereto for the purpose of evaluating the accuracy, completeness, and currency of the cost or pricing data submitted. This right of examination shall extend to all documents necessary to permit adequate evaluation of the cost or pricing data submitted along with the computations and projections used therein.
- 24.3 The above materials shall be made available at the office of the Contractor, Subcontractors, materialmen or suppliers at all reasonable times for inspection, audit or reproduction until the expiration of six (6) years from the date of the final certificate for the Contract.
- 24.4 If this Contract is completely or partially terminated, the records relating to the Work terminated shall be made available for a period of six (6) years from the date of any resulting final settlement.
- 24.5 Records that relate to the Disputes Clause of this Contract or litigation or the settlement of claims arising out of the performance of this Contract shall be made available until the disposal of such appeals, litigation or claims.
- 24.6 The Contractor shall insert a clause containing all of the provisions of Article 24 in all subcontracts or purchase orders issued hereunder.

- 24.7 The Contractor shall make available to the Director, upon written request, all records required to be kept by Article 3-A of the Lien Law. The failure to provide said records upon the receipt of the written request shall bar any recovery for claimed extra or additional costs under this Contract.

ARTICLE 25 – LABOR LAW AND PREVAILING WAGES NOTIFICATIONS PROVISIONS

- 25.1 In addition to any other provisions of this Contract in relation to prevailing wage rates, the Contractor shall be responsible for the certain notifications.
- 25.2 The Contractor shall post, in a location designated by the Office, a copy of the New York State Department of Labor schedules of prevailing wages and supplements for this Project, a copy of all re-determinations of such schedules for the Project, all other notices required by law to be posted at the Site, the Department of Labor notice that this Project is a public work project on which each worker is entitled to receive the prevailing wages and supplements for the occupation at which he or she is working, and all other notices which the Office directs the Contractor to post. The Contractor shall provide a surface for such notices, which is satisfactory to the Office. The Contractor shall maintain such notices in a legible manner and shall replace any notice or schedule that is damaged, defaced, illegible or removed for any reason. The Contractor shall post such notices before commencing any Work on the Site and shall maintain such notices until all Work on the Site is complete.
- 25.3 The Contractor shall distribute to each worker for this Contract a notice, in a form provided by the State, that this project is a public work project on which each worker is entitled to receive the prevailing wage and supplements for the occupation at which he or she is working. Worker includes employees of Contractor and all Subcontractors and all employees of suppliers entering the Site. Such notice shall be distributed to each worker in accordance with Labor Law 220 3-a.
- 25.4 In addition to the requirements of Appendix A, paragraph 6 entitled “Wage and Hours Provisions”, the Contractor is responsible for any additional costs related to new determinations of the wage rates. The annual determination of the prevailing rates of wages and supplements are usually published on May 31st of each year and are in effect July 1st through June 30th. New determinations shall supersede the original schedule or any prior issued annual determination. Any rate change from a previously issued determination becomes effective July 1st, regardless of whether the new determination has been received by the Contractor.

ARTICLE 26 - STATUTORY REQUIREMENTS FOR RESTRICTIONS ON CONTACTS DURING THE PROCUREMENT PROCESS AND DISCLOSURE OF CONTACTS AND RESPONSIBILITY OF OFFERERS MISCELLANEOUS PROVISIONS

- 26.1 New York State Finance Law §139-k requires that every procurement contract award subject to the provisions of State Finance Law §139-k or §139-j shall contain a certification by the Offerer that all information provided to the procuring governmental agency with respect to State Finance Law §139-k is complete, true and accurate. The

Contractor shall provide that certification in his or her contract or agreement.

26.2 New York State Finance Law

26.2.1 New York State Finance Law § 139-k(2) requires the Office to obtain specific information regarding prior non-responsibility determinations. This information must be collected in addition to the information that is separately obtained pursuant to State Finance Law § 163 (9). In accordance with State Finance Law § 139-k, an Offerer must be asked to disclose whether there has been a finding of non-responsibility made within the previous four (4) years by any Governmental Entity due to: (a) a violation of State Finance Law § 139-j or (b) the intentional provision of false or incomplete information to a Governmental Entity.

26.2.2 As part of its responsibility determination, State Finance Law § 139-k(3) mandates consideration of whether an Offerer fails to timely disclose or complete information regarding the above non-responsibility determination. In accordance with law, no procurement contract shall be awarded to any Offerer that fails to timely disclose accurate or complete information under this section, unless a finding is made that the award of a procurement contract to the Offerer is necessary to protect public property or public health safety, and that the Offerer is the only source capable of performing the required Work within the necessary timeframe. The required forms to be completed by the Offerer must be submitted to the Office.

ARTICLE 27 – EMBODIED CARBON DISCLOSURE

27.1 Executive Order 22: Leading by Example (EO 22) requires the disclosure of embodied carbon that will result from all OPRHP construction projects costing over \$1 million that use certain minimum quantities of concrete mixes, asphalt mixes, steel, and glass (“Covered Construction Materials”) as those quantities are set forth in the GreenNY Council Embodied Carbon Guidance. The GreenNY Council Embodied Carbon Guidance is available here: <https://ogs.ny.gov/executive-order-22-embodied-carbon-guidance>. Contractor warrants that Contractor has reviewed and is familiar with all GreenNY Council Embodied Carbon guidance and/or guidelines.

27.2 Contractor shall be required to submit environmental product declarations (EPDs) for all Covered Construction Materials, if available, used in the Project. EPDs must be Product Specific Type III (Third-Party Reviewed), in adherence with ISO 14025 Environmental labels and declarations, ISO 14044 Environmental management-life cycle assessment, and ISO 21930 Core rules for environmental product declarations of construction products and services. Digitized EPDs can be found on EPD databases and sent as a link to the Director’s Representative as part of the submittals process and in relation to the disclosure required in Article 27.4.

27.3 For Covered Construction Materials, Contractors shall disclose with each payment application, the exact Covered Construction Materials and estimated quantities used in the Project whether or not an EPD exists for that particular material/product. In addition to submitting the EPDs required under Article 27.3, for each Covered Construction Material used in the Project for which EPDs exist, the Contractor will submit kgCO₂

equivalent estimates by material/product and quantity used, on the Project to date, with a link to the digital EPD, if available.

ARTICLE 28 – MISCELLANEOUS PROVISIONS

28.1 Commencement of Actions: The time, as prescribed by law, within which an action on the contract against the Contractor must be commenced shall be computed from the date of completion of physical work. The Contractor shall notify the Office in writing that the physical work of the contract has been completed by specifying a completion date, which date shall be no more than thirty days prior to the date of such notice. The completion date set forth in such notice shall be deemed the date of completion of the physical work unless the Office, within thirty days of receipt of such notice, notifies the Contractor of a dispute in writing. Any notice pursuant to this paragraph shall be sent by the Contractor by Certified Mail and sent to the parties set forth in the Notice provision of this Article.

28.1.1 In the event that the Contractor fails to provide notice as set forth herein or the Office disputes the completion date in the manner provided for herein, the date of completion of the physical work shall be determined in any other manner provided by law.

28.1.2 Choice of Law/Damages: This Contract shall be governed and interpreted in accordance with the laws of the State of New York. Any and all claims against the State, the Office, its Commissioner, employees, officers or agents arising out of this Contract shall be limited to money damages and commenced exclusively in, and subject to the jurisdiction of the New York State Court of Claims or any other court of competent jurisdiction located in Albany County, New York. Any such claim shall not be removed to federal court.

28.2 Notice

(a) Unless otherwise indicated in these General Conditions, all notices permitted or required hereunder shall be in writing and shall be transmitted either:

- i. via certified or registered United States mail, return receipt requested;
- ii. by facsimile transmission;
- iii. by personal delivery;
- iv. by expedited delivery service; or
- v. by e-mail.

Such notices shall be addressed as follows or to such different addresses as the parties may from time-to-time designate:

If to the Office:

Capital Unit
New York State Office of Parks, Recreation and Historic Preservation
Albany, NY 12238
Phone (518) 473-7435
Fax: (518) 486-2372
E-Mail Address: capital@parks.ny.gov

and

General Counsel
New York State Office of Parks, Recreation and Historic Preservation
Albany, NY 12238
Phone (518) 486-2921
Fax: (518) 474-5106
E-Mail Address: counsel@parks.ny.gov

- (b) Any such notice shall be deemed to have been given either at the time of personal delivery or, in the case of expedited delivery service or certified or registered United States mail, as of the date of first attempted delivery at the address and in the manner provided herein, or in the case of facsimile transmission or email, upon receipt.
 - (c) The parties may, from time to time, specify any new or different address in the United States as their address for purpose of receiving notice under this Contract by giving fifteen (15) days written notice to the other party sent in accordance herewith. The parties agree to mutually designate individuals as their respective representatives for the purposes of receiving notices under this Contract.. Additional individuals may be designated in writing by the parties for purposes of implementation and administration/billing, resolving issues and problems and/or for dispute resolution.
- 28.3 Severability: If any provision, term or condition of this contract is held to be invalid, illegal, or unenforceable, such determination shall not affect the validity, legality or enforceability of any other part of this Contract and the remaining parts of this Contract shall be enforced as if the invalid, illegal or unenforceable provisions, terms or conditions are not contained herein.
- 28.4 Integration Clause: This Contract shall not be materially amended, changed or otherwise modified except in writing signed by both parties and approved by the Attorney General and Office of the State Comptroller. Except to the extent that documents are incorporated herein by reference, this Contract constitutes the entire agreement between the parties concerning the subject matter hereof and supersedes all prior agreements and understandings of the parties in connection therewith. No covenant, representation or condition not expressed herein shall be effective to interpret, change or restrict the express provisions of this Contract.

APPENDICES

29.1 The following appendices are attached hereto and hereby made a part of this agreement as if set forth fully herein.

- (a) Appendix A, Standard Clauses for All New York State Contracts;
- (b) Appendix B

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Appendix A (Standard Clauses for all New York State Contracts

APPENDIX A

STANDARD CLAUSES FOR NEW YORK STATE CONTRACTS

PLEASE RETAIN THIS DOCUMENT
FOR FUTURE REFERENCE.

June 2023

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STANDARD CLAUSES FOR NYS CONTRACTS

The parties to the attached contract, license, lease, amendment or other agreement of any kind (hereinafter, “the contract” or “this contract”) agree to be bound by the following clauses which are hereby made a part of the contract (the word “Contractor” herein refers to any party other than the State, whether a contractor, licenser, licensee, lessor, lessee or any other party):

1. EXECUTORY CLAUSE. In accordance with Section 41 of the State Finance Law, the State shall have no liability under this contract to the Contractor or to anyone else beyond funds appropriated and available for this contract.

2. NON-ASSIGNMENT CLAUSE. In accordance with Section 138 of the State Finance Law, this contract may not be assigned by the Contractor or its right, title or interest therein assigned, transferred, conveyed, sublet or otherwise disposed of without the State’s previous written consent, and attempts to do so are null and void. Notwithstanding the foregoing, such prior written consent of an assignment of a contract let pursuant to Article XI of the State Finance Law may be waived at the discretion of the contracting agency and with the concurrence of the State Comptroller where the original contract was subject to the State Comptroller’s approval, where the assignment is due to a reorganization, merger or consolidation of the Contractor’s business entity or enterprise. The State retains its right to approve an assignment and to require that any Contractor demonstrate its responsibility to do business with the State. The Contractor may, however, assign its right to receive payments without the State’s prior written consent unless this contract concerns Certificates of Participation pursuant to Article 5-A of the State Finance Law.

3. COMPTROLLER’S APPROVAL. In accordance with Section 112 of the State Finance Law, if this contract exceeds \$50,000 (or \$75,000 for State University of New York or City University of New York contracts for goods, services, construction and printing, and \$150,000 for State University Health Care Facilities) or if this is an amendment for any amount to a contract which, as so amended, exceeds said statutory amount, or if, by this contract, the State agrees to give something other than money when the value or reasonably estimated value of such consideration exceeds \$25,000, it shall not be valid, effective or binding upon the State until it has been approved by the State Comptroller and filed in his office. Comptroller’s approval of contracts let by the Office of General Services, either for itself or its customer agencies by the Office of General Services Business Services Center, is required when such contracts exceed \$85,000. Comptroller’s approval of contracts established as centralized contracts through the Office of General Services is required when such contracts exceed \$125,000, and when a purchase order or other procurement transaction issued under such centralized contract exceeds \$200,000.

4. WORKERS’ COMPENSATION BENEFITS. In accordance with Section 142 of the State Finance Law, this contract shall be void and of no force and effect unless the Contractor shall provide and maintain coverage during the life of this contract for the benefit of such employees as are required to be covered by the provisions of the Workers’ Compensation Law.

5. NON-DISCRIMINATION REQUIREMENTS. To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor will not discriminate against any employee or applicant for employment, nor subject any individual to harassment, because of age, race, creed, color, national origin, citizenship or immigration status, sexual orientation, gender identity or expression, military status, sex, disability, predisposing genetic characteristics, familial status, marital status, or domestic violence victim status or because the individual has opposed any practices forbidden under the Human Rights Law or has filed a complaint, testified, or assisted in any proceeding under the Human Rights Law. Furthermore, in accordance with Section 220-e of the Labor Law, if this is a contract for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this contract shall be performed within the State of New York, Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex, or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. If this is a building service contract as defined in Section 230 of the Labor Law, then, in accordance with Section 239 thereof, Contractor agrees that neither it nor its subcontractors shall by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. Contractor is subject to fines of \$50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this contract and forfeiture of all moneys due hereunder for a second or subsequent violation.

6. WAGE AND HOURS PROVISIONS. If this is a public work contract covered by Article 8 of the Labor Law or a building service contract covered by Article 9 thereof, neither Contractor’s employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in

accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-a of Section 220 of the Labor Law shall be a condition precedent to payment by the State of any State approved sums due and owing for work done upon the project.

7. NON-COLLUSIVE BIDDING CERTIFICATION. In accordance with Section 139-d of the State Finance Law, if this contract was awarded based upon the submission of bids, Contractor affirms, under penalty of perjury, that its bid was arrived at independently and without collusion aimed at restricting competition. Contractor further affirms that, at the time Contractor submitted its bid, an authorized and responsible person executed and delivered to the State a non-collusive bidding certification on Contractor's behalf.

8. INTERNATIONAL BOYCOTT PROHIBITION. In accordance with Section 220-f of the Labor Law and Section 139-h of the State Finance Law, if this contract exceeds \$5,000, the Contractor agrees, as a material condition of the contract, that neither the Contractor nor any substantially owned or affiliated person, firm, partnership or corporation has participated, is participating, or shall participate in an international boycott in violation of the federal Export Administration Act of 1979 (50 USC App. Sections 2401 et seq.) or regulations thereunder. If such Contractor, or any of the aforesaid affiliates of Contractor, is convicted or is otherwise found to have violated said laws or regulations upon the final determination of the United States Commerce Department or any other appropriate agency of the United States subsequent to the contract's execution, such contract, amendment or modification thereto shall be rendered forfeit and void. The Contractor shall so notify the State Comptroller within five (5) business days of such conviction, determination or disposition of appeal (2 NYCRR § 105.4).

9. SET-OFF RIGHTS. The State shall have all of its common law, equitable and statutory rights of set-off. These rights shall include, but not be limited to, the State's option to withhold for the purposes of set-off any moneys due to the Contractor under this contract up to any amounts due and owing to the State with regard to this contract, any other contract with any State department or agency, including any contract for a term commencing prior to the term of this contract, plus any amounts due and owing to the State for any other reason including, without limitation, tax delinquencies, fee delinquencies or monetary penalties relative thereto. The State shall exercise its set-off rights in accordance with normal State practices including, in cases of set-off pursuant to an audit, the finalization of such audit by the State agency, its representatives, or the State Comptroller.

10. RECORDS. The Contractor shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertinent to performance under this contract (hereinafter, collectively, the "Records"). The Records

must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter. The State Comptroller, the Attorney General and any other person or entity authorized to conduct an examination, as well as the agency or agencies involved in this contract, shall have access to the Records during normal business hours at an office of the Contractor within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. The State shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute") provided that: (i) the Contractor shall timely inform an appropriate State official, in writing, that said records should not be disclosed; and (ii) said records shall be sufficiently identified; and (iii) designation of said records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, the State's right to discovery in any pending or future litigation.

11. IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION. (a) Identification Number(s). Every invoice or New York State Claim for Payment submitted to a New York State agency by a payee, for payment for the sale of goods or services or for transactions (e.g., leases, easements, licenses, etc.) related to real or personal property must include the payee's identification number. The number is any or all of the following: (i) the payee's Federal employer identification number, (ii) the payee's Federal social security number, and/or (iii) the payee's Vendor Identification Number assigned by the Statewide Financial System. Failure to include such number or numbers may delay payment. Where the payee does not have such number or numbers, the payee, on its invoice or Claim for Payment, must give the reason or reasons why the payee does not have such number or numbers.

(b) Privacy Notification. (1) The authority to request the above personal information from a seller of goods or services or a lessor of real or personal property, and the authority to maintain such information, is found in Section 5 of the State Tax Law. Disclosure of this information by the seller or lessor to the State is mandatory. The principal purpose for which the information is collected is to enable the State to identify individuals, businesses and others who have been delinquent in filing tax returns or may have understated their tax liabilities and to generally identify persons affected by the taxes administered by the Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law. (2) The personal information is requested by the purchasing unit of the agency contracting to purchase the goods or services or lease the real or personal property covered by this contract or lease. The information is maintained in the Statewide Financial System by the Vendor Management Unit within the Bureau of State Expenditures, Office of the State Comptroller, 110 State Street, Albany, New York 12236.

12. EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITIES AND WOMEN.

In accordance with Section 312 of the Executive Law and 5 NYCRR Part 143, if this contract is: (i) a written agreement or purchase order instrument, providing for a total expenditure in excess of \$25,000.00, whereby a contracting agency is committed to expend or does expend funds in return for labor, services, supplies, equipment, materials or any combination of the foregoing, to be performed for, or rendered or furnished to the contracting agency; or (ii) a written agreement in excess of \$100,000.00 whereby a contracting agency is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon; or (iii) a written agreement in excess of \$100,000.00 whereby the owner of a State assisted housing project is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon for such project, then the following shall apply and by signing this agreement the Contractor certifies and affirms that it is Contractor's equal employment opportunity policy that:

(a) The Contractor will not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status, shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on State contracts and will undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination. Affirmative action shall mean recruitment, employment, job assignment, promotion, upgradings, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation;

(b) at the request of the contracting agency, the Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union or representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein; and

(c) the Contractor shall state, in all solicitations or advertisements for employees, that, in the performance of the State contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

Contractor will include the provisions of "(a), (b) and (c)" above, in every subcontract over \$25,000.00 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the Work is for the beneficial use of the Contractor. Section 312 does not

apply to: (i) work, goods or services unrelated to this contract; or (ii) employment outside New York State. The State shall consider compliance by a contractor or subcontractor with the requirements of any federal law concerning equal employment opportunity which effectuates the purpose of this clause. The contracting agency shall determine whether the imposition of the requirements of the provisions hereof duplicate or conflict with any such federal law and if such duplication or conflict exists, the contracting agency shall waive the applicability of Section 312 to the extent of such duplication or conflict. Contractor will comply with all duly promulgated and lawful rules and regulations of the Department of Economic Development's Division of Minority and Women's Business Development pertaining hereto.

13. CONFLICTING TERMS. In the event of a conflict between the terms of the contract (including any and all attachments thereto and amendments thereof) and the terms of this Appendix A, the terms of this Appendix A shall control.

14. GOVERNING LAW. This contract shall be governed by the laws of the State of New York except where the Federal supremacy clause requires otherwise.

15. LATE PAYMENT. Timeliness of payment and any interest to be paid to Contractor for late payment shall be governed by Article 11-A of the State Finance Law to the extent required by law.

16. NO ARBITRATION. Disputes involving this contract, including the breach or alleged breach thereof, may not be submitted to binding arbitration (except where statutorily authorized), but must, instead, be heard in a court of competent jurisdiction of the State of New York.

17. SERVICE OF PROCESS. In addition to the methods of service allowed by the State Civil Practice Law & Rules ("CPLR"), Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon Contractor's actual receipt of process or upon the State's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Contractor must promptly notify the State, in writing, of each and every change of address to which service of process can be made. Service by the State to the last known address shall be sufficient. Contractor will have thirty (30) calendar days after service hereunder is complete in which to respond.

18. PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS. The Contractor certifies and warrants that all wood products to be used under this contract award will be in accordance with, but not limited to, the specifications and provisions of Section 165 of the State Finance Law, (Use of Tropical Hardwoods) which prohibits purchase and use of tropical hardwoods, unless specifically exempted, by the State or any governmental agency or political subdivision or public benefit corporation. Qualification for an exemption under this

law will be the responsibility of the contractor to establish to meet with the approval of the State.

In addition, when any portion of this contract involving the use of woods, whether supply or installation, is to be performed by any subcontractor, the prime Contractor will indicate and certify in the submitted bid proposal that the subcontractor has been informed and is in compliance with specifications and provisions regarding use of tropical hardwoods as detailed in § 165 State Finance Law. Any such use must meet with the approval of the State; otherwise, the bid may not be considered responsive. Under bidder certifications, proof of qualification for exemption will be the responsibility of the Contractor to meet with the approval of the State.

19. MACBRIDE FAIR EMPLOYMENT PRINCIPLES. In accordance with the MacBride Fair Employment Principles (Chapter 807 of the Laws of 1992), the Contractor hereby stipulates that the Contractor either (a) has no business operations in Northern Ireland, or (b) shall take lawful steps in good faith to conduct any business operations in Northern Ireland in accordance with the MacBride Fair Employment Principles (as described in Section 165 of the New York State Finance Law), and shall permit independent monitoring of compliance with such principles.

20. OMNIBUS PROCUREMENT ACT OF 1992. It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority- and women-owned business enterprises as bidders, subcontractors and suppliers on its procurement contracts.

Information on the availability of New York State subcontractors and suppliers is available from:

NYS Department of Economic Development
Division for Small Business and Technology Development
625 Broadway
Albany, New York 12245
Telephone: 518-292-5100

A directory of certified minority- and women-owned business enterprises is available from:

NYS Department of Economic Development
Division of Minority and Women's Business Development
633 Third Avenue 33rd Floor
New York, NY 10017
646-846-7364
email: mwbebusinessdev@esd.ny.gov
<https://ny.newnycontracts.com/FrontEnd/searchcertifieddirectory.asp>

The Omnibus Procurement Act of 1992 (Chapter 844 of the Laws of 1992, codified in State Finance Law § 139-i and Public Authorities Law § 2879(3)(n)-(p)) requires that by signing this bid proposal or contract, as applicable, Contractors certify that whenever the total bid amount is greater than \$1 million:

(a) The Contractor has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and subcontractors, including certified minority- and women-owned business enterprises, on this project, and has retained the documentation of these efforts to be provided upon request to the State;

(b) The Contractor has complied with the Federal Equal Opportunity Act of 1972 (P.L. 92-261), as amended;

(c) The Contractor agrees to make reasonable efforts to provide notification to New York State residents of employment opportunities on this project through listing any such positions with the Job Service Division of the New York State Department of Labor, or providing such notification in such manner as is consistent with existing collective bargaining contracts or agreements. The Contractor agrees to document these efforts and to provide said documentation to the State upon request; and

(d) The Contractor acknowledges notice that the State may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with the State in these efforts.

21. RECIPROCITY AND SANCTIONS PROVISIONS. Bidders are hereby notified that if their principal place of business is located in a country, nation, province, state or political subdivision that penalizes New York State vendors, and if the goods or services they offer will be substantially produced or performed outside New York State, the Omnibus Procurement Act 1994 and 2000 amendments (Chapter 684 and Chapter 383, respectively, codified in State Finance Law § 165(6) and Public Authorities Law § 2879(5)) require that they be denied contracts which they would otherwise obtain. NOTE: As of May 2023, the list of discriminatory jurisdictions subject to this provision includes the states of South Carolina, Alaska, West Virginia, Wyoming, Louisiana and Hawaii.

22. COMPLIANCE WITH BREACH NOTIFICATION AND DATA SECURITY LAWS. Contractor shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law §§ 899-aa and 899-bb and State Technology Law § 208).

23. COMPLIANCE WITH CONSULTANT DISCLOSURE LAW. If this is a contract for consulting services, defined for purposes of this requirement to include analysis, evaluation, research, training, data processing, computer programming, engineering, environmental, health, and mental health services, accounting, auditing, paralegal, legal or similar services, then, in accordance with Section 163 (4)(g) of the State Finance Law (as amended by Chapter 10 of the Laws of 2006), the Contractor shall timely, accurately and properly comply with the requirement to submit an annual employment report for the contract to the agency that awarded the contract, the Department of Civil Service and the State Comptroller.

24. PROCUREMENT LOBBYING. To the extent this agreement is a “procurement contract” as defined by State Finance Law §§ 139-j and 139-k, by signing this agreement the contractor certifies and affirms that all disclosures made in accordance with State Finance Law §§ 139-j and 139-k are complete, true and accurate. In the event such certification is found to be intentionally false or intentionally incomplete, the State may terminate the agreement by providing written notification to the Contractor in accordance with the terms of the agreement.

25. CERTIFICATION OF REGISTRATION TO COLLECT SALES AND COMPENSATING USE TAX BY CERTAIN STATE CONTRACTORS, AFFILIATES AND SUBCONTRACTORS.

To the extent this agreement is a contract as defined by Tax Law § 5-a, if the contractor fails to make the certification required by Tax Law § 5-a or if during the term of the contract, the Department of Taxation and Finance or the covered agency, as defined by Tax Law § 5-a, discovers that the certification, made under penalty of perjury, is false, then such failure to file or false certification shall be a material breach of this contract and this contract may be terminated, by providing written notification to the Contractor in accordance with the terms of the agreement, if the covered agency determines that such action is in the best interest of the State.

26. IRAN DIVESTMENT ACT. By entering into this Agreement, Contractor certifies in accordance with State Finance Law § 165-a that it is not on the “Entities Determined to be Non-Responsive Bidders/Offerers pursuant to the New York State Iran Divestment Act of 2012” (“Prohibited Entities List”) posted at: <https://ogs.ny.gov/iran-divestment-act-2012>

Contractor further certifies that it will not utilize on this Contract any subcontractor that is identified on the Prohibited Entities List. Contractor agrees that should it seek to renew or extend this Contract, it must provide the same certification at the time the Contract is renewed or extended. Contractor also agrees that any proposed Assignee of this Contract will be required to certify that it is not on the Prohibited Entities List before the contract assignment will be approved by the State.

During the term of the Contract, should the state agency receive information that a person (as defined in State Finance Law § 165-a) is in violation of the above-referenced certifications, the state agency will review such information and offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment activity which is in violation of the Act within 90 days after the determination of such violation, then the state agency shall take such action as may be appropriate and provided for by law, rule, or contract, including, but not limited to, imposing sanctions, seeking compliance, recovering damages, or declaring the Contractor in default.

The state agency reserves the right to reject any bid, request for assignment, renewal or extension for an entity that appears on the Prohibited Entities List prior to the award, assignment, renewal or extension of a contract, and to pursue a responsibility review with respect to any entity that is awarded a contract and appears on the Prohibited Entities list after contract award.

27. ADMISSIBILITY OF REPRODUCTION OF CONTRACT. Notwithstanding the best evidence rule or any other legal principle or rule of evidence to the contrary, the Contractor acknowledges and agrees that it waives any and all objections to the admissibility into evidence at any court proceeding or to the use at any examination before trial of an electronic reproduction of this contract, in the form approved by the State Comptroller, if such approval was required, regardless of whether the original of said contract is in existence.

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Appendix B (Participation by Minority Group Members and Women with Respect to this Contract

**PARTICIPATION BY MINORITY GROUP MEMBERS AND WOMEN WITH
RESPECT TO STATE CONTRACTS: REQUIREMENTS AND PROCEDURES**

I. General Provisions

- A. The New York State Office of Parks, Recreation and Historic Preservation is required to implement the provisions of New York State Executive Law Article 15-A and 5 NYCRR Parts 140-145 (“MWBE Regulations”) for all State contracts as defined therein, with a value (1) in excess of \$25,000 for labor, services, equipment, materials, or any combination of the foregoing or (2) in excess of \$100,000 for real property renovations and construction.
- B. The Contractor to the subject contract (the “Contractor” and the “Contract,” respectively) agrees, in addition to any other nondiscrimination provision of the Contract and at no additional cost to the New York State Office of Parks, Recreation and Historic Preservation, to fully comply and cooperate with the New York State Office of Parks, Recreation and Historic Preservation in the implementation of New York State Executive Law Article 15-A. These requirements include equal employment opportunities for minority group members and women (“EEO”) and contracting opportunities for certified minority and women-owned business enterprises (“MWBEs”). The Contractor’s demonstration of “good faith efforts” pursuant to 5 NYCRR § 142.8 shall be a part of these requirements. These provisions shall be deemed supplementary to, and not in lieu of, the nondiscrimination provisions required by New York State Executive Law Article 15 (the “Human Rights Law”) or other applicable federal, state or local laws.
- C. Failure to comply with all of the requirements herein may result in a finding of non-responsiveness, non-responsibility and/or a breach of contract, leading to the withholding of funds or such other actions, liquidated damages pursuant to Section VII of this Appendix or enforcement proceedings as allowed by the Contract.

II. Contract Goals

- A. For purposes of this procurement, the New York State Office of Parks, Recreation and Historic Preservation hereby establishes New York State certified minority-owned business enterprises (“MBE”) participation and New York State certified women-owned business enterprises (“WBE”) participation (collectively, “MWBE Contract Goals”) based on the current availability of qualified MBEs and WBEs as defined in the bidders documentation provided at the time of solicitation. After contract approval, MWBE Contract Goals as defined on the approved utilization plan will be endorsed to determine compliance for the contract term.
- B. For purposes of providing meaningful participation by MWBEs on the Contract and achieving the MWBE Contract Goals established in Section II-A hereof, the Contractor should reference the directory of New York State Certified MBWEs found at the following internet address: <https://ny.newnycontracts.com>.

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Additionally, the Contractor is encouraged to contact the Division of Minority and Woman Business Development ((518) 292-5250; (212) 803-2414; or (716) 846-8200) to discuss additional methods of maximizing participation by MWBEs on the Contract.

- C. Where MWBE Contract Goals have been established herein, pursuant to 5 NYCRR § 142.8, the Contractor must document “good faith efforts” to provide meaningful participation by MWBEs as subcontractors or suppliers in the performance of the Contract. In accordance with Section 316-a of Article 15-A and 5 NYCRR § 142.13, the Contractor acknowledges that if it is found to have willfully and intentionally failed to comply with the MWBE participation goals set forth in the Contract, such a finding constitutes a breach of contract and the Contractor shall be liable to the New York State Office of Parks, Recreation and Historic Preservation for liquidated or other appropriate damages, as set forth herein.

III. Equal Employment Opportunity (EEO)

- A. The provisions of Article 15-A of the Executive Law and the rules and regulations promulgated thereunder pertaining to equal employment opportunities for minority group members and women shall apply to the Contract.
- B. In performing the Contract, the Contractor shall:
1. Ensure that each Contractor and subcontractor performing work on the Contract shall undertake or continue existing EEO programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status. For these purposes, EEO shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation.
 2. The Contractor shall submit an EEO policy statement to the New York State office of Parks, Recreation and Historic Preservation within seventy-two (72) hours after the date of the notice by the New York State Office of Parks, Recreation and Historic Preservation to award the Contract to the Contractor.
 3. If the Contractor, or any of its subcontractors, does not have an existing EEO policy statement, the New York State office of Parks, Recreation and Historic Preservation may require the Contractor or subcontractor to adopt a model statement (see Form – Equal Employment Opportunity Policy Statement).
 4. The Contractor’s EEO policy statement shall include the following language:
 - a. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability, or marital status, will undertake or continue existing EEO programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination, and shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force.

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- b. The Contractor shall state in all solicitations or advertisements for employees that, in the performance of the contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.
- c. The Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union, or representative will not discriminate on the basis of race, creed, color, national origin, sex age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein.
- d. The Contractor will include the provisions of Subdivisions (a) through (c) of this Subsection 4 and Paragraph "E" of this Section III, which provides for relevant provisions of the Human Rights Law, in every subcontract in such a manner that the requirements of the subdivisions will be binding upon each subcontractor as to work in connection with the Contract.

C. Staffing Plan

To ensure compliance with this Section, for those contracts reaching \$250,000 or greater, the Contractor shall submit a staffing plan to document the composition of the proposed workforce to be utilized in the performance of the Contract by the specified categories listed, including ethnic background, gender, and Federal occupational categories. The Contractor shall complete the Staffing plan form and submit it as part of their bid or proposal or within a reasonable time, but no later than the time of award of the contract.

D. Workforce Utilization Report

1. The Contractor shall submit a Workforce Utilization Report, and shall require each of its subcontractors to submit a Workforce Utilization Report, in such form as shall be required by the New York State Office of Parks, Recreation and Historic Preservation on a [MONTHLY/QUARTERLY] basis during the term of the Contract.
 2. Separate forms shall be completed by the Contractor and any subcontractors.
 3. Pursuant to Executive Order #162, Contractors and subcontractors are also required to report the gross wages paid to each of their employees for the work performed by such employees on the contract on a quarterly basis.
- E. The Contractor shall comply with the provisions of the Human Rights Law, and all other State and Federal statutory and constitutional non-discrimination provisions. The Contractor and its subcontractors shall not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

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IV. MWBE Utilization Plan

- A. The Contractor represents and warrants that Contractor has submitted an MWBE Utilization Plan, by submitting evidence thereof through the New York State Contract System (“NYSCS”), which can be viewed at <https://ny.newnycontracts.com>, provided, however, that the Contractor may arrange to provide such evidence via a non-electronic method to the New York State Office of Parks, Recreation and Historic Preservation, either prior to, or at the time of, the execution of the contract.
- B. The Contractor agrees to use such MWBE Utilization Plan for the performance of MWBEs on the Contract pursuant to the prescribed MWBE goals set forth in Section III-A of this Appendix.
- C. The Contractor further agrees that a failure to submit and/or use such MWBE Utilization Plan shall constitute a material breach of the terms of the Contract. Upon the occurrence of such a material breach, New York State Office of Parks, Recreation and Historic Preservation shall be entitled to any remedy provided herein, including but not limited to, a finding of the Contractor non-responsiveness.

V. Waivers

- A. For Waiver Requests, the Contractor should use the NYSCS, provided, however, that Bidder may arrange to provide such evidence via a non-electronic method to New York State Office of Parks, Recreation and Historic Preservation.
- B. If the Contractor, after making good faith efforts, is unable to comply with MWBE goals, the Contractor may submit a Request for Waiver documenting good faith efforts by the Contractor to meet such goals. If the documentation included with the waiver request is complete, the New York State Office of Parks, Recreation and Historic Preservation shall evaluate the request and issue a written notice of acceptance or denial within twenty (20) days of receipt.
- C. If the New York State Office of Parks, Recreation and Historic Preservation, upon review of the MWBE Utilization Plan and updated MWBE Contractor Compliance Reports determines that the Contractor is failing or refusing to comply with the MWBE Contract Goals and no waiver has been issued in regards to such non-compliance, the New York State Office of Parks, Recreation and Historic Preservation may issue a notice of deficiency to the Contractor. The Contractor must respond to the notice of deficiency within seven (7) business days of receipt. Such response may include a request for partial or total waiver of MWBE Contract Goals.

VI. MWBE Contractor Compliance Report

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The Contractor is required to submit MWBE Contractor Compliance Reports through the NYSCS, provided, however, that Bidder may arrange to provide such evidence via a non-electronic method to the New York State Office of Parks, Recreation and Historic Preservation. Reports will be generated by the NYSCS for completion upon the generation of a payment to the Contractor. Reports should be completed for the term of the Contract documenting the progress made towards achievement of the MWBE goals of the Contract.

VII. Liquidated Damages - MWBE Participation

- A. Where New York State Office of Parks, Recreation and Historic Preservation determines that the Contractor is not in compliance with the requirements of the Contract and the Contractor refuses to comply with such requirements, or if the Contractor is found to have willfully and intentionally failed to comply with the MWBE participation goals, the Contractor shall be obligated to pay to the New York State Office of Parks, Recreation and Historic Preservation liquidated damages.
- B. Such liquidated damages shall be calculated as an amount equaling the difference between:
 - 1. All sums identified for payment to MWBEs had the Contractor achieved the contractual MWBE goals; and
 - 2. All sums actually paid to MWBEs for work performed or materials supplied under the Contract.
- C. In the event a determination has been made which requires the payment of liquidated damages and such identified sums have not been withheld by the New York State Office of Parks, Recreation and Historic Preservation, the Contractor shall pay such liquidated damages to the New York State Office of Parks, Recreation and Historic Preservation within sixty (60) days after they are assessed by the New York State Office of Parks, Recreation and Historic Preservation unless prior to the expiration of such sixtieth day, the Contractor has filed a complaint with the Director of the Division of Minority and Woman Business Development pursuant to Subdivision 8 of Section 313 of the Executive Law in which event the liquidated damages shall be payable if the Director renders a decision in favor of the New York State Office of Parks, Recreation and Historic Preservation.

PARTICIPATION OPPORTUNITIES FOR NEW YORK STATE CERTIFIED SERVICE-DISABLED VETERAN OWNED BUSINESSES

Article 17-B of the New York State Executive Law provides for more meaningful participation in public procurement by certified Service-Disabled Veteran-Owned Businesses (“SDVOB”), thereby further integrating such businesses into New York State’s economy. The New York State Office of Parks, Recreation and Historic Preservation recognizes the need to promote the employment of service-disabled veterans and to ensure that certified service-disabled veteran-owned businesses have opportunities for maximum feasible participation in the performance of the New York State Office of Parks, Recreation and Historic Preservation contracts.

In recognition of the service and sacrifices made by service-disabled veterans and in recognition of their economic activity in doing business in New York State, Bidders are expected to consider SDVOBs in the fulfillment of the requirements of the Contract. Such participation may be as subcontractors or suppliers, as protégés, or in other partnering or supporting roles.

I. Contract Goals

- A. For purposes of this procurement, the New York State Office of Parks, Recreation and Historic Preservation hereby establishes SDVOB participation, based on the current availability of qualified SDVOB as defined in the bidder’s documentation provided at the time of solicitation. For purposes of providing meaningful participation by SDVOBs, the Bidder/Contractor should reference the directory of New York State Certified SDVOBs found at: <https://online.ogs.ny.gov/SDVOB/search> Questions regarding compliance with SDVOB participation goals should be directed to the Minority Business Specialist, 518-486-2636. Additionally, following Contract execution, Contractor is encouraged to contact the Office of General Services’ Division of Service-Disabled Veterans’ Business Development at 518-474-2015 or VeteransDevelopment@ogs.ny.gov to discuss additional methods of maximizing participation by SDVOBs on the Contract.
- B. Contractor must document “good faith efforts” to provide meaningful participation by SDVOBs as subcontractors or suppliers in the performance of the Contract (see clause IV below).

II. SDVOB Utilization Plan

- A. In accordance with 9 NYCRR § 252.2(i), Contractors are required to submit a completed SDVOB Utilization Plan. This should be done utilizing the New York State Contracting system and the SDVOB Capital Construction Worksheet.
- B. The Utilization Plan shall list the SDVOBs that the Bidder intends to use to perform the Contract, a description of the work that the Bidder intends the SDVOB to perform to meet the goals on the Contract, the estimated dollar amounts to be paid to an SDVOB, or, if not known, an estimate of the percentage of Contract work the SDVOB will perform. By signing the Utilization Plan, the Bidder acknowledges that making false representations or providing information that shows a lack of good faith as part of, or in

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conjunction with, the submission of a Utilization Plan is prohibited by law and may result in penalties including, but not limited to, termination of a contract for cause, loss of eligibility to submit future bids, and/or withholding of payments. Any modifications or changes to the agreed participation by SDVOBs after the Contract award and during the term of the Contract must be reported on a revised SDVOB Utilization Plan and submitted to the New York State Office of Parks, Recreation and Historic Preservation.

- C. The New York State Office of Parks, Recreation and Historic Preservation will review the submitted SDVOB Utilization Plan and advise the Contractor of the New York State Office of Parks, Recreation and Historic Preservation acceptance or issue a notice of deficiency within 20 days of receipt.
- D. If a notice of deficiency is issued, Contractor agrees that it shall respond to the notice of deficiency, within seven business days of receipt, by submitting to the New York State Office of Parks, Recreation and Historic Preservation a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by the New York State Office of Parks, Recreation and Historic Preservation to be inadequate, the New York State Office of Parks, Recreation and Historic Preservation shall notify the Contractor and direct the Contractor to submit, within five business days of notification by the New York State Office of Parks, Recreation and Historic Preservation, a request for a partial or total waiver of SDVOB participation goals. Failure to file the waiver form in a timely manner may be grounds for disqualification of the bid or proposal.
- E. The New York State Office of Parks, Recreation and Historic Preservation may disqualify a Contractor's bid or proposal as being non-responsive under the following circumstances:
 - (a) If a Contractor fails to submit an SDVOB Utilization Plan;
 - (b) If a Contractor fails to submit a written remedy to a notice of deficiency;
 - (c) If a Contractor fails to submit a request for waiver; or
 - (d) If the New York State Office of Parks, Recreation and Historic Preservation determines that the Contractor has failed to document good faith efforts.
- F. Contractor certifies that it will follow the submitted SDVOB Utilization Plan for the performance of SDVOBs on the Contract pursuant to the prescribed SDVOB contract goals set forth above.
- G. Contractor further agrees that a failure to use SDVOBs as agreed in the Utilization Plan shall constitute a material breach of the terms of the Contract. Upon the occurrence of such a material breach, the New York State Office of Parks, Recreation and Historic Preservation shall be entitled to any remedy provided herein, including but not limited to, a finding of Contractor non-responsibility.

III. Request for Waiver

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- A. Prior to submission of a request for a partial or total waiver, Bidder/Contractor shall speak to the Minority Business Specialist 518-486-2636 for guidance.
- B. In accordance with 9 NYCRR § 252.2(m), a Contractor that is able to document good faith efforts to meet the goal requirements, as set forth in clause IV below, may submit a request for a partial or total waiver on Form SDVOB 200, accompanied by supporting documentation. A Bidder may submit the request for waiver at the same time it submits its SDVOB Utilization Plan. If a request for waiver is submitted with the SDVOB Utilization Plan and is not accepted by the New York State Office of Parks, Recreation and Historic Preservation at that time, the provisions of clauses II (C), (D) & (E) will apply. If the documentation included with the Bidder's/Contractor's waiver request is complete, the New York State Office of Parks, Recreation and Historic Preservation shall evaluate the request and issue a written notice of acceptance or denial within 20 days of receipt.
- C. Contractor shall attempt to utilize, in good faith, the SDVOBs identified within its SDVOB Utilization Plan, during the performance of the Contract. Requests for a partial or total waiver of established goal requirements made subsequent to Contract award may be made at any time during the term of the Contract to the New York State Office of Parks, Recreation and Historic Preservation, but must be made no later than prior to the submission of a request for final payment on the Contract.
- D. If the New York State Office of Parks, Recreation and Historic Preservation, upon review of the SDVOB Utilization Plan and SDVOB Compliance Report determines that Contractor is failing or refusing to comply with the contract goals and no waiver has been issued in regards to such non-compliance, the New York State Office of Parks, Recreation and Historic Preservation may issue a notice of deficiency to the Contractor. The Contractor must respond to the notice of deficiency within seven business days of receipt. Such response may include a request for partial or total waiver of SDVOB contract goals.

Waiver requests should be sent to the New York State Office of Parks, Recreation and Historic Preservation.

IV. Required Good Faith Efforts

In accordance with 9 NYCRR § 252.2(n), Contractors must document their good faith efforts toward utilizing SDVOBs on the Contract. Evidence of required good faith efforts shall include, but not be limited to, the following:

- (1) Copies of solicitations to SDVOBs and any responses thereto.
- (2) Explanation of the specific reasons each SDVOB that responded to Bidders/Contractors' solicitation was not selected.
- (3) Dates of any pre-bid, pre-award or other meetings attended by Contractor, if any, scheduled by the New York State Office of Parks, Recreation and Historic Preservation

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with certified SDVOBs whom the New York State Office of Parks, Recreation and Historic Preservation determined were capable of fulfilling the SDVOB goals set in the Contract.

(4) Information describing the specific steps undertaken to reasonably structure the Contract scope of work for the purpose of subcontracting with, or obtaining supplies from, certified SDVOBs.

(5) Other information deemed relevant to the waiver request.

V. SDVOB Contractor Compliance Report

In accordance with 9 NYCRR § 252.2(q), Contractor is required to report SDVOB Contractor Compliance to the New York State Office of Parks, Recreation and Historic Preservation during the term of the Contract documenting progress made towards achieving the Contract SDVOB goals. This information must be submitted through the NYSCS. Reports will be generated by the NYSCS for completion upon the generation of a payment to the Contractor. Reports should be completed for the term of the Contract documenting the progress made towards achievement of the SDVOB goals of the Contract.

VI. Breach of Contract and Damages

In accordance with 9 NYCRR § 252.2(s), any Contractor found to have willfully and intentionally failed to comply with the SDVOB participation goals set forth in the Contract, shall be found to have breached the contract and Contractor shall pay damages as set forth therein.

Damages shall be calculated based on the actual cost incurred by the State agency related to the State agency's expenses for personnel, supplies and overhead related to establishing, monitoring, and reviewing certified service disabled veteran owned business enterprise programmatic goals.

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Prevailing Wage Rates



Kathy Hochul, Governor

Roberta Reardon, Commissioner

NYS Office of Parks

Amanda Tucker, Senior Architect
19 Roosevelt Dr
Saratoga Springs NY 12866

Schedule Year 2024 through 2025
Date Requested 08/17/2024
PRC# 2024010499

Location John Jay Homestead SHS
Project ID# D006292
Project Type Site-wide improvements and museum house restoration with exterior and interior changes to multiple buildings including accessibility, circulation, new geothermal, stormwater, utility, and landscaping

PREVAILING WAGE SCHEDULE FOR ARTICLE 8 PUBLIC WORK PROJECT

Attached is the current schedule(s) of the prevailing wage rates and prevailing hourly supplements for the project referenced above. A unique Prevailing Wage Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2024 through June 2025. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website www.labor.ny.gov. Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

It is the responsibility of the contracting agency or its agent to annex and make part, the attached schedule, to the specifications for this project, when it is advertised for bids and /or to forward said schedules to the successful bidder(s), immediately upon receipt, in order to insure the proper payment of wages.

Please refer to the "General Provisions of Laws Covering Workers on Public Work Contracts" provided with this schedule, for the specific details relating to other responsibilities of the Department of Jurisdiction.

Upon completion or cancellation of this project, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: _____ Date Cancelled: _____

Name & Title of Representative: _____

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12226

General Provisions of Laws Covering Workers on Article 8 Public Work Contracts

Introduction

The Labor Law requires public work contractors and subcontractors to pay laborers, workers, or mechanics employed in the performance of a public work contract not less than the prevailing rate of wage and supplements (fringe benefits) in the locality where the work is performed.

Responsibilities of the Department of Jurisdiction

A Department of Jurisdiction (Contracting Agency) includes a state department, agency, board or commission; a county, city, town or village; a school district, board of education or board of cooperative educational services; a sewer, water, fire, improvement and other district corporation; a public benefit corporation; and a public authority awarding a public work contract.

The Department of Jurisdiction (Contracting Agency) awarding a public work contract MUST obtain a Prevailing Rate Schedule listing the hourly rates of wages and supplements due the workers to be employed on a public work project. This schedule may be obtained by completing and forwarding a "Request for wage and Supplement Information" form (PW 39) to the Bureau of Public Work. The Prevailing Rate Schedule MUST be included in the specifications for the contract to be awarded and is deemed part of the public work contract.

Upon the awarding of the contract, the law requires that the Department of Jurisdiction (Contracting Agency) furnish the following information to the Bureau: the name and address of the contractor, the date the contract was let and the approximate dollar value of the contract. To facilitate compliance with this provision of the Labor Law, a copy of the Department's "Notice of Contract Award" form (PW 16) is provided with the original Prevailing Rate Schedule.

The Department of Jurisdiction (Contracting Agency) is required to notify the Bureau of the completion or cancellation of any public work project. The Department's PW 200 form is provided for that purpose.

Both the PW 16 and PW 200 forms are available for completion [online](#).

Hours

No laborer, worker, or mechanic in the employ of a contractor or subcontractor engaged in the performance of any public work project shall be permitted to work more than eight hours in any day or more than five days in any week, except in cases of extraordinary emergency. The contractor and the Department of Jurisdiction (Contracting Agency) may apply to the Bureau of Public Work for a dispensation permitting workers to work additional hours or days per week on a particular public work project.

Wages and Supplements

The wages and supplements to be paid and/or provided to laborers, workers, and mechanics employed on a public work project shall be not less than those listed in the current Prevailing Rate Schedule for the locality where the work is performed. If a prime contractor on a public work project has not been provided with a Prevailing Rate Schedule, the contractor must notify the Department of Jurisdiction (Contracting Agency) who in turn must request an original Prevailing Rate Schedule from the Bureau of Public Work. Requests may be submitted by: mail to NYSDOL, Bureau of Public Work, State Office Bldg. Campus, Bldg. 12, Rm. 130, Albany, NY 12226; Fax to Bureau of Public Work (518) 485-1870; or electronically at the NYSDOL website www.labor.ny.gov.

Upon receiving the original schedule, the Department of Jurisdiction (Contracting Agency) is REQUIRED to provide complete copies to all prime contractors who in turn MUST, by law, provide copies of all applicable county schedules to each subcontractor and obtain from each subcontractor, an affidavit certifying such schedules were received. If the original schedule expired, the contractor may obtain a copy of the new annual determination from the NYSDOL website www.labor.ny.gov.

The Commissioner of Labor makes an annual determination of the prevailing rates. This determination is in effect from July 1st through June 30th of the following year. The annual determination is available on the NYSDOL website www.labor.ny.gov.

Payrolls and Payroll Records

Every contractor and subcontractor MUST keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. As per Article 6 of the Labor law, contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemporaneous, true, and accurate payroll records. At a minimum, payrolls must show the following information for each person employed on a public work project: Name, Address, Last 4 Digits of Social Security Number, Classification(s) in which the worker was employed, Hourly wage rate(s) paid, Supplements paid or provided, and Daily and weekly number of hours worked in each classification.

The filing of payrolls to the Department of Jurisdiction is a condition of payment. Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury. The Department of Jurisdiction (Contracting Agency) shall collect, review for facial validity, and maintain such payrolls.

In addition, the Commissioner of Labor may require contractors to furnish, with ten (10) days of a request, payroll records sworn to as their validity and accuracy for public work and private work. Payroll records include, but are not limited to time cards, work description sheets, proof that supplements were provided, cancelled payroll checks and payrolls. Failure to provide the requested information within the allotted ten (10) days will result in the withholding of up to 25% of the contract, not to exceed \$100,000.00. If the contractor or subcontractor does not maintain a place of business in New York State and the amount of the contract exceeds \$25,000.00, payroll records and certifications must be kept on the project worksite.

The prime contractor is responsible for any underpayments of prevailing wages or supplements by any subcontractor.

All contractors or their subcontractors shall provide to their subcontractors a copy of the Prevailing Rate Schedule specified in the public work contract as well as any subsequently issued schedules. A failure to provide these schedules by a contractor or subcontractor is a violation of Article 8, Section 220-a of the Labor Law.

All subcontractors engaged by a public work project contractor or its subcontractor, upon receipt of the original schedule and any subsequently issued schedules, shall provide to such contractor a verified statement attesting that the subcontractor has received the Prevailing Rate Schedule and will pay or provide the applicable rates of wages and supplements specified therein. (See NYS Labor Laws, Article 8 . Section 220-a).

Determination of Prevailing Wage and Supplement Rate Updates Applicable to All Counties

The wages and supplements contained in the annual determination become effective July 1st whether or not the new determination has been received by a given contractor. Care should be taken to review the rates for obvious errors. Any corrections should be brought to the Department's attention immediately. It is the responsibility of the public work contractor to use the proper rates. If there is a question on the proper classification to be used, please call the district office located nearest the project. Any errors in the annual determination will be corrected and posted to the NYSDOL website on the first business day of each month. Contractors are responsible for paying these updated rates as well, retroactive to July 1st.

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. To the extent possible, the Department posts rates in its possession that cover periods of time beyond the July 1st to June 30th time frame covered by a particular annual determination. Rates that extend beyond that instant time period are informational ONLY and may be updated in future annual determinations that actually cover the then appropriate July 1st to June 30th time period.

Withholding of Payments

When a complaint is filed with the Commissioner of Labor alleging the failure of a contractor or subcontractor to pay or provide the prevailing wages or supplements, or when the Commissioner of Labor believes that unpaid wages or supplements may be due, payments on the public work contract shall be withheld from the prime contractor in a sufficient amount to satisfy the alleged unpaid wages and supplements, including interest and civil penalty, pending a final determination.

When the Bureau of Public Work finds that a contractor or subcontractor on a public work project failed to pay or provide the requisite prevailing wages or supplements, the Bureau is authorized by Sections 220-b and 235.2 of the Labor Law to so notify the financial officer of the Department of Jurisdiction (Contracting Agency) that awarded the public work contract. Such officer MUST then withhold or cause to be withheld from any payment due the prime contractor on account of such contract the amount indicated by the Bureau as sufficient to satisfy the unpaid wages and supplements, including interest and any civil penalty that may be assessed by the Commissioner of Labor. The withholding continues until there is a final determination of the underpayment by the Commissioner of Labor or by the court in the event a legal proceeding is instituted for review of the determination of the Commissioner of Labor.

The Department of Jurisdiction (Contracting Agency) shall comply with this order of the Commissioner of Labor or of the court with respect to the release of the funds so withheld.

Summary of Notice Posting Requirements

The current Prevailing Rate Schedule must be posted in a prominent and accessible place on the site of the public work project. The prevailing wage schedule must be encased in, or constructed of, materials capable of withstanding adverse weather conditions and be titled "PREVAILING RATE OF WAGES" in letters no smaller than two (2) inches by two (2) inches.

The ["Public Work Project"](#) notice must be posted at the beginning of the performance of every public work contract, on each job site.

Every employer providing workers. compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers. Compensation Board in a conspicuous place on the jobsite.

Every employer subject to the NYS Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers, notices furnished by the State Division of Human Rights.

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the NYS Department of Labor.

Apprentices

Employees cannot be paid apprentice rates unless they are individually registered in a program registered with the NYS Commissioner of Labor. The allowable ratio of apprentices to journeyworkers in any craft classification can be no greater than the statewide building trade ratios promulgated by the Department of Labor and included with the Prevailing Rate Schedule. An employee listed on a payroll as an apprentice who is not registered as above or is performing work outside the classification of work for which the apprentice is indentured, must be paid the prevailing journeyworker's wage rate for the classification of work the employee is actually performing.

NYSDOL Labor Law, Article 8, Section 220-3, require that only apprentices individually registered with the NYS Department of Labor may be paid apprenticeship rates on a public work project. No other Federal or State Agency of office registers apprentices in New York State.

Persons wishing to verify the apprentice registration of any person must do so in writing by mail, to the NYSDOL Office of Employability Development / Apprenticeship Training, State Office Bldg. Campus, Bldg. 12, Albany, NY 12226 or by Fax to NYSDOL Apprenticeship Training (518) 457-7154. All requests for verification must include the name and social security number of the person for whom the information is requested.

The only conclusive proof of individual apprentice registration is written verification from the NYSDOL Apprenticeship Training Albany Central office. Neither Federal nor State Apprenticeship Training offices outside of Albany can provide conclusive registration information.

It should be noted that the existence of a registered apprenticeship program is not conclusive proof that any person is registered in that program. Furthermore, the existence or possession of wallet cards, identification cards, or copies of state forms is not conclusive proof of the registration of any person as an apprentice.

Interest and Penalties

In the event that an underpayment of wages and/or supplements is found:

- Interest shall be assessed at the rate then in effect as prescribed by the Superintendent of Banks pursuant to section 14-a of the Banking Law, per annum from the date of underpayment to the date restitution is made.
- A Civil Penalty may also be assessed, not to exceed 25% of the total of wages, supplements, and interest due.

Debarment

Any contractor or subcontractor and/or its successor shall be ineligible to submit a bid on or be awarded any public work contract or subcontract with any state, municipal corporation or public body for a period of five (5) years when:

- Two (2) willful determinations have been rendered against that contractor or subcontractor and/or its successor within any consecutive six (6) year period.
- There is any willful determination that involves the falsification of payroll records or the kickback of wages or supplements.

Criminal Sanctions

Willful violations of the Prevailing Wage Law (Article 8 of the Labor Law) may be a felony punishable by fine or imprisonment of up to 15 years, or both.

Discrimination

No employee or applicant for employment may be discriminated against on account of age, race, creed, color, national origin, sex, disability or marital status.

No contractor, subcontractor nor any person acting on its behalf, shall by reason of race, creed, color, disability, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates (NYS Labor Law, Article 8, Section 220-e(a)).

No contractor, subcontractor, nor any person acting on its behalf, shall in any manner, discriminate against or intimidate any employee on account of race, creed, color, disability, sex, or national origin (NYS Labor Law, Article 8, Section 220-e(b)).

The Human Rights Law also prohibits discrimination in employment because of age, marital status, or religion.

There may be deducted from the amount payable to the contractor under the contract a penalty of \$50.00 for each calendar day during which such person was discriminated against or intimidated in violation of the provision of the contract (NYS Labor Law, Article 8, Section 220-e(c)).

The contract may be cancelled or terminated by the State or municipality. All monies due or to become due thereunder may be forfeited for a second or any subsequent violation of the terms or conditions of the anti-discrimination sections of the contract (NYS Labor Law, Article 8, Section 220-e(d)).

Every employer subject to the New York State Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers notices furnished by the State Division of Human Rights.

Workers' Compensation

In accordance with Section 142 of the State Finance Law, the contractor shall maintain coverage during the life of the contract for the benefit of such employees as required by the provisions of the New York State Workers' Compensation Law.

A contractor who is awarded a public work contract must provide proof of workers' compensation coverage prior to being allowed to begin work.

The insurance policy must be issued by a company authorized to provide workers' compensation coverage in New York State. Proof of coverage must be on form C-105.2 (Certificate of Workers' Compensation Insurance) and must name this agency as a certificate holder.

If New York State coverage is added to an existing out-of-state policy, it can only be added to a policy from a company authorized to write workers' compensation coverage in this state. The coverage must be listed under item 3A of the information page.

The contractor must maintain proof that subcontractors doing work covered under this contract secured and maintained a workers' compensation policy for all employees working in New York State.

Every employer providing worker's compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

Unemployment Insurance

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the New York State Department of Labor.



Kathy Hochul, Governor

Roberta Reardon, Commissioner

NYS Office of Parks

Amanda Tucker, Senior Architect
19 Roosevelt Dr
Saratoga Springs NY 12866

Schedule Year 2024 through 2025
Date Requested 08/17/2024
PRC# 2024010499

Location John Jay Homestead SHS
Project ID# D006292
Project Type Site-wide improvements and museum house restoration with exterior and interior changes to multiple buildings including accessibility, circulation, new geothermal, stormwater, utility, and landscaping

Notice of Contract Award

New York State Labor Law, Article 8, Section 220.3a requires that certain information regarding the awarding of public work contracts, be furnished to the Commissioner of Labor. One "Notice of Contract Award" (PW 16, which may be photocopied), **MUST** be completed for **EACH** prime contractor on the above referenced project.

Upon notifying the successful bidder(s) of this contract, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

Contractor Information

All information must be supplied

Federal Employer Identification Number: _____		
Name: _____		
Address: _____ _____		
City: _____	State: _____	Zip: _____
Amount of Contract: \$ _____	Contract Type:	
Approximate Starting Date: ____/____/____	☐ (01) General Construction	
Approximate Completion Date: ____/____/____	☐ (02) Heating/Ventilation	
	☐ (03) Electrical	
	☐ (04) Plumbing	
	☐ (05) Other : _____	

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12226

Social Security Numbers on Certified Payrolls:

The Department of Labor is cognizant of the concerns of the potential for misuse or inadvertent disclosure of social security numbers. Identity theft is a growing problem and we are sympathetic to contractors' concern regarding inclusion of this information on payrolls if another identifier will suffice.

For these reasons, the substitution of the use of the last four digits of the social security number on certified payrolls submitted to contracting agencies on public work projects is now acceptable to the Department of Labor. This change does not affect the Department's ability to request and receive the entire social security number from employers during its public work/ prevailing wage investigations.

Construction Industry Fair Play Act: Required Posting for Labor Law Article 25-B § 861-d

Construction industry employers must post the "Construction Industry Fair Play Act" notice in a prominent and accessible place on the job site. Failure to post the notice can result in penalties of up to \$1,500 for a first offense and up to \$5,000 for a second offense. The posting is included as part of this wage schedule. Additional copies may be obtained from the NYS DOL website, <https://dol.ny.gov/public-work-and-prevailing-wage>

If you have any questions concerning the Fair Play Act, please call the State Labor Department toll-free at 1-866-435-1499 or email us at: dol.misclassified@labor.ny.gov.

Worker Notification: (Labor Law §220, paragraph a of subdivision 3-a)

Effective June 23, 2020

This provision is an addition to the existing wage rate law, Labor Law §220, paragraph a of subdivision 3-a. It requires contractors and subcontractors to provide written notice to all laborers, workers or mechanics of the *prevailing wage and supplement rate* for their particular job classification *on each pay stub**. It also requires contractors and subcontractors to *post a notice* at the beginning of the performance of every public work contract *on each job site* that includes the telephone number and address for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing rate of wages and/or supplements for his/her job classification. The required notification will be provided with each wage schedule, may be downloaded from our website www.labor.ny.gov or be made available upon request by contacting the Bureau of Public Work at 518-457-5589. *In the event the required information will not fit on the pay stub, an accompanying sheet or attachment of the information will suffice.

(12.20)

**To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND**

Budget Policy & Reporting Manual

B-610

Public Work Enforcement Fund

effective date December 7, 2005

1. Purpose and Scope:

This Item describes the Public Work Enforcement Fund (the Fund, PWEF) and its relevance to State agencies and public benefit corporations engaged in construction or reconstruction contracts, maintenance and repair, and announces the recently-enacted increase to the percentage of the dollar value of such contracts that must be deposited into the Fund. This item also describes the roles of the following entities with respect to the Fund:

- New York State Department of Labor (DOL),
- The Office of the State of Comptroller (OSC), and
- State agencies and public benefit corporations.

2. Background and Statutory References:

DOL uses the Fund to enforce the State's Labor Law as it relates to contracts for construction or reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law. State agencies and public benefit corporations participating in such contracts are required to make payments to the Fund.

Chapter 511 of the Laws of 1995 (as amended by Chapter 513 of the Laws of 1997, Chapter 655 of the Laws of 1999, Chapter 376 of the Laws of 2003 and Chapter 407 of the Laws of 2005) established the Fund.

3. Procedures and Agency Responsibilities:

The Fund is supported by transfers and deposits based on the value of contracts for construction and reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law, into which all State agencies and public benefit corporations enter.

Chapter 407 of the Laws of 2005 increased the amount required to be provided to this fund to .10 of one-percent of the total cost of each such contract, to be calculated at the time agencies or public benefit corporations enter into a new contract or if a contract is amended. The provisions of this bill became effective August 2, 2005.

To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

OSC will report to DOL on all construction-related ("D") contracts approved during the month, including contract amendments, and then DOL will bill agencies the appropriate assessment monthly. An agency may then make a determination if any of the billed contracts are exempt and so note on the bill submitted back to DOL. For any instance where an agency is unsure if a contract is or is not exempt, they can call the Bureau of Public Work at the number noted below for a determination. Payment by check or journal voucher is due to DOL within thirty days from the date of the billing. DOL will verify the amounts and forward them to OSC for processing.

For those contracts which are not approved or administered by the Comptroller, monthly reports and payments for deposit into the Public Work Enforcement Fund must be provided to the Administrative Finance Bureau at the DOL within 30 days of the end of each month or on a payment schedule mutually agreed upon with DOL.

Reports should contain the following information:

- Name and billing address of State agency or public benefit corporation;
- State agency or public benefit corporation contact and phone number;
- Name and address of contractor receiving the award;
- Contract number and effective dates;
- Contract amount and PWEF assessment charge (if contract amount has been amended, reflect increase or decrease to original contract and the adjustment in the PWEF charge); and
- Brief description of the work to be performed under each contract.

Checks and Journal Vouchers, payable to the "New York State Department of Labor" should be sent to:

Department of Labor
Administrative Finance Bureau-PWEF Unit
Building 12, Room 464
State Office Campus
Albany, NY 12226

Any questions regarding billing should be directed to NYSDOL's Administrative Finance Bureau-PWEF Unit at (518) 457-3624 and any questions regarding Public Work Contracts should be directed to the Bureau of Public Work at (518) 457-5589.



Required Notice under Article 25-B of the Labor Law

Attention All Employees, Contractors and Subcontractors: You are Covered by the Construction Industry Fair Play Act

The law says that you are an employee unless:

- You are free from direction and control in performing your job, **and**
- You perform work that is not part of the usual work done by the business that hired you, **and**
- You have an independently established business.

Your employer cannot consider you to be an independent contractor unless all three of these facts apply to your work.

It is against the law for an employer to misclassify employees as independent contractors or pay employees off the books.

Employee Rights: If you are an employee, you are entitled to state and federal worker protections. These include:

- Unemployment Insurance benefits, if you are unemployed through no fault of your own, able to work, and otherwise qualified,
- Workers' compensation benefits for on-the-job injuries,
- Payment for wages earned, minimum wage, and overtime (under certain conditions),
- Prevailing wages on public work projects,
- The provisions of the National Labor Relations Act, and
- A safe work environment.

It is a violation of this law for employers to retaliate against anyone who asserts their rights under the law. Retaliation subjects an employer to civil penalties, a private lawsuit or both.

Independent Contractors: If you are an independent contractor, **you must pay all taxes and Unemployment Insurance contributions required by New York State and Federal Law.**

Penalties for paying workers off the books or improperly treating employees as independent contractors:

- **Civil Penalty**
 - First offense: Up to \$2,500 per employee
 - Subsequent offense(s): Up to \$5,000 per employee
- **Criminal Penalty**
 - First offense: Misdemeanor - up to 30 days in jail, up to a \$25,000 fine and debarment from performing public work for up to one year.
 - Subsequent offense(s): Misdemeanor - up to 60 days in jail or up to a \$50,000 fine and debarment from performing public work for up to 5 years.

If you have questions about your employment status or believe that your employer may have violated your rights and you want to file a complaint, call the Department of Labor at (866) 435-1499 or send an email to dol.misclassified@labor.ny.gov. All complaints of fraud and violations are taken seriously. You can remain anonymous.

Employer Name:



Attention Employees

THIS IS A: **PUBLIC WORK PROJECT**

If you are employed on this project as a **worker, laborer, or mechanic** you are entitled to receive the **prevailing wage and supplements rate** for the classification at which you are working.

Your pay stub and wage notice received upon hire must clearly state your wage rate and supplement rate.

Chapter 629 of
the Labor Laws
of 2007:

These wages are set by law and must be posted at the work site. They can also be found at:
<https://dol.ny.gov/bureau-public-work>



If you feel that you have not received proper wages or benefits, please call our nearest office.*

Albany	(518) 457-2744	Patchogue	(631) 687-4882
Binghamton	(607) 721-8005	Rochester	(585) 258-4505
Buffalo	(716) 847-7159	Syracuse	(315) 428-4056
Garden City	(516) 228-3915	Utica	(315) 793-2314
New York City	(212) 932-2419	White Plains	(914) 997-9507
Newburgh	(845) 568-5287		

* For New York City government agency construction projects, please contact the Office of the NYC Comptroller at (212) 669-4443, or www.comptroller.nyc.gov – click on Bureau of Labor Law.

Contractor Name: _____

Project Location: _____

Requirements for OSHA 10 Compliance

Article 8 §220-h requires that when the advertised specifications, for every contract for public work, is \$250,000.00 or more the contract must contain a provision requiring that every worker employed in the performance of a public work contract shall be certified as having completed an OSHA 10 safety training course. The clear intent of this provision is to require that all employees of public work contractors, required to be paid prevailing rates, receive such training "prior to the performing any work on the project."

The Bureau will enforce the statute as follows:

All contractors and sub contractors must attach a copy of proof of completion of the OSHA 10 course to the first certified payroll submitted to the contracting agency and on each succeeding payroll where any new or additional employee is first listed.

Proof of completion may include but is not limited to:

- Copies of bona fide course completion card (*Note: Completion cards do not have an expiration date.*)
- Training roster, attendance record or other documentation from the certified trainer pending the issuance of the card.
- Other valid proof

**A certification by the employer attesting that all employees have completed such a course is not sufficient proof that the course has been completed.

Any questions regarding this statute may be directed to the New York State Department of Labor, Bureau of Public Work at 518-457-5589.

WICKS

Public work projects are subject to the Wicks Law requiring separate specifications and bidding for the plumbing, heating and electrical work, when the total project's threshold is \$3 million in Bronx, Kings, New York, Queens and, Richmond counties; \$1.5 million in Nassau, Suffolk and Westchester counties; and \$500,000 in all other counties.

For projects below the monetary threshold, bidders must submit a sealed list naming each subcontractor for the plumbing, HVAC and electrical and the amount to be paid to each. The list may not be changed unless the public owner finds a legitimate construction need, including a change in specifications or costs or the use of a Project Labor Agreement (PLA), and must be open to public inspection.

Allows the state and local agencies and authorities to waive the Wicks Law and use a PLA if it will provide the best work at the lowest possible price. If a PLA is used, all contractors shall participate in apprentice training programs in the trades of work it employs that have been approved by the Department of Labor (DOL) for not less than three years. They shall also have at least one graduate in the last three years and use affirmative efforts to retain minority apprentices. PLA's would be exempt from Wicks, but deemed to be public work subject to prevailing wage enforcement.

The Commissioner of Labor shall have the power to enforce separate specification requirements on projects, and may issue stop-bid orders against public owners for non-compliance.

Other new monetary thresholds, and similar sealed bidding for non-Wicks projects, would apply to certain public authorities including municipal housing authorities, NYC Construction Fund, Yonkers Educational Construction Fund, NYC Municipal Water Finance Authority, Buffalo Municipal Water Finance Authority, Westchester County Health Care Association, Nassau County Health Care Corp., Clifton-Fine Health Care Corp., Erie County Medical Center Corp., NYC Solid Waste Management Facilities, and the Dormitory Authority.

Contractors must pay subcontractors within a 7 days period.

(07.19)

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

This information is provided to assist you in the interpretation of particular requirements for each classification of worker contained in the attached Schedule of Prevailing Rates.

Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below.

Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a county-by-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates.

Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use.

Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

Payrolls and Payroll Records

Contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemporaneous, true, and accurate payroll records.

Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury.

Paid Holidays

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

Overtime

At a minimum, all work performed on a public work project in excess of eight hours in any one day or more than five days in any workweek is overtime. However, the specific overtime requirements for each trade or occupation on a public work project may differ. Specific overtime requirements for each trade or occupation are contained in the prevailing rate schedules.

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays.

The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Supplemental Benefits

Particular attention should be given to the supplemental benefit requirements. Although in most cases the payment or provision of supplements is straight time for all hours worked, some classifications require the payment or provision of supplements, or a portion of the supplements, to be paid or provided at a premium rate for premium hours worked. Supplements may also be required to be paid or provided on paid holidays, regardless of whether the day is worked. The Overtime Codes and Notes listed on the particular wage classification will indicate these conditions as required.

Effective Dates

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. The rate listed is valid until the next effective rate change or until the new annual determination which takes effect on July 1 of each year. All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. If you have any questions please contact the Bureau of Public Work or visit the New York State Department of Labor website (www.labor.ny.gov) for current wage rate information.

Apprentice Training Ratios

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.

Title (Trade)	Ratio
Boilermaker (Construction)	1:1,1:4
Boilermaker (Shop)	1:1,1:3
Carpenter (Bldg.,H&H, Pile Driver/Dockbuilder)	1:1,1:4
Carpenter (Residential)	1:1,1:3
Electrical (Outside) Lineman	1:1,1:2
Electrician (Inside)	1:1,1:3
Elevator/Escalator Construction & Modernizer	1:1,1:2
Glazier	1:1,1:3
Insulation & Asbestos Worker	1:1,1:3
Iron Worker	1:1,1:4
Laborer	1:1,1:3
Mason	1:1,1:4
Millwright	1:1,1:4
Op Engineer	1:1,1:5
Painter	1:1,1:3
Plumber & Steamfitter	1:1,1:3
Roofer	1:1,1:2
Sheet Metal Worker	1:1,1:3
Sprinkler Fitter	1:1,1:2

If you have any questions concerning the attached schedule or would like additional information, please contact the nearest BUREAU of PUBLIC WORK District Office or write to:

New York State Department of Labor
Bureau of Public Work
State Office Campus, Bldg. 12
Albany, NY 12226

District Office Locations:	Telephone #	FAX #
Bureau of Public Work - Albany	518-457-2744	518-485-0240
Bureau of Public Work - Binghamton	607-721-8005	607-721-8004
Bureau of Public Work - Buffalo	716-847-7159	716-847-7650
Bureau of Public Work - Garden City	516-228-3915	516-794-3518
Bureau of Public Work - Newburgh	845-568-5287	845-568-5332
Bureau of Public Work - New York City	212-932-2419	212-775-3579
Bureau of Public Work - Patchogue	631-687-4882	631-687-4902
Bureau of Public Work - Rochester	585-258-4505	585-258-4708
Bureau of Public Work - Syracuse	315-428-4056	315-428-4671
Bureau of Public Work - Utica	315-793-2314	315-793-2514
Bureau of Public Work - White Plains	914-997-9507	914-997-9523
Bureau of Public Work - Central Office	518-457-5589	518-485-1870

Westchester County General Construction

Boilermaker	08/01/2024

JOB DESCRIPTION Boilermaker

DISTRICT 4

ENTIRE COUNTIES
Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES		
Per Hour:	07/01/2024	01/01/2025
Boilermaker	\$ 67.38	\$ 68.88
Repairs & Renovations	67.38	68.88

Repairs & Renovation: Includes Repairing, Renovating replacement of parts to an existing unit(s).

SUPPLEMENTAL BENEFITS		
Per Hour:		
Boilermaker	33.5% of hourly	33.5% of Hourly
Repair & Renovations	Wage Paid	Wage Paid
	+ \$ 26.85	+ \$26.85

NOTE: "Hourly Wage Paid" shall include any and all premium(s) pay.

Repairs & Renovation Includes replacement of parts and repairs & renovation of existing unit.

OVERTIME PAY
See (*B, O, **U) on OVERTIME PAGE
Note:* Includes 9th & 10th hours, double for 11th or more.
** Labor Day ONLY, if worked.

Repairs & Renovation see (B,E,Q) on OT Page

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 12, 15, 25, 26, 29) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage per hour:
(1/2) Year Terms at the following percentage of Boilermaker's Wage

1st	2nd	3rd	4th	5th	6th	7th
65%	70%	75%	80%	85%	90%	95%

Supplemental Benefits Per Hour:

	33.5% of Hourly Wage Paid Plus Amount Below	33.5% of Hourly Wage Paid Plus Amount Below
1st Term	\$ 20.36	\$ 20.36
2nd Term	21.28	21.28
3rd Term	22.22	22.22
4th Term	23.12	23.12
5th Term	24.07	24.07
6th Term	25.00	25.00
7th Term	25.93	25.93

NOTE: "Hourly Wage Paid" shall include any and all premium(s)

4-5

Carpenter	08/01/2024

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES		
Per hour:	07/01/2024	

Piledriver \$ 60.59
+ 10.00*

Dockbuilder \$ 60.59
+ 10.00*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$ 45.79

OVERTIME PAY

See (B, E2, O) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.

Apprentices See (5,6,11,13,25)

Overtime: See (5,6,11,13,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour

(1)year terms:

1st	2nd	3rd	4th
\$26.98	\$32.58	\$40.96	\$49.35
+ 5.50*	+ 5.50*	+ 5.50*	+ 5.50*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental benefits per hour:

All Terms: \$ 32.34

8-1556 Db

Carpenter

08/01/2024

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2024

Carpet/Resilient

Floor Coverer \$ 55.05
+ 8.25*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

INCLUDES HANDLING & INSTALLATION OF ARTIFICIAL TURF AND SIMILAR TURF INDOORS/OUTDOORS.

SUPPLEMENTAL BENEFITS

Per hour:

\$ 39.45

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18, 19) on HOLIDAY PAGE.

Paid for 1st & 2nd yr.

Apprentices See (5,6,11,13,16,18,19,25)

Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wage per hour - (1) year terms:

1st	2nd	3rd	4th
\$ 25.20	\$ 28.20	\$ 32.45	\$ 40.33

+ 1.85* + 2.35* + 2.85* + 3.85*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental benefits per hour:

1st	2nd	3rd	4th
\$ 15.22	\$ 16.22	\$ 19.32	\$ 20.32

8-2287

Carpenter**08/01/2024**

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per Hour: 07/01/2024

Marine Construction:

Marine Diver \$ 75.46
+ 10.00*

Marine Tender \$ 55.00
+ 10.00*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker \$ 45.65

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18, 19) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 13, 16, 18, 19, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One (1) year terms.

1st year	\$ 26.98 + 5.50*
2nd year	32.58 + 5.50*
3rd year	40.96 + 5.50*
4th year	49.35 + 5.50*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental Benefits

Per Hour:

All terms \$ 32.20

8-1456MC

Carpenter**08/01/2024**

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2024

Building
Millwright \$ 59.35
 + 13.12*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SUPPLEMENTAL BENEFITS

Per hour:

Millwright \$ 45.41

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (18, 19) on HOLIDAY PAGE
Paid: See (18,19) on HOLIDAY PAGE.

Overtime See (5,6,8,11,13,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:
One (1) year terms:

1st.	2nd.	3rd.	4th.
\$ 32.16	\$ 37.61	\$ 43.06	\$ 53.96
+ 7.08*	+ 8.25*	+ 9.42*	+ 11.76*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental benefits per hour:

One (1) year terms:

1st.	2nd.	3rd.	4th.
\$ 30.56	\$ 33.09	\$ 36.27	\$ 40.69

8-740.1

Carpenter

08/01/2024

JOB DESCRIPTION Carpenter **DISTRICT 8**

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour:
07/01/2024

Timberman \$ 55.59
 + 10.26*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SUPPLEMENTAL BENEFITS

Per Hour:
07/01/2024

\$ 44.96

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY
Overtime: See (5, 6, 11, 13, 25) on HOLIDAY PAGE
Paid: See (1) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.
Apprentices See (5,6,11,13,25)

Overtime: See (5,6,11,13,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:
One (1) year terms:

1st	2nd	3rd	4th

\$24.96	\$30.07	\$37.72	\$45.38
+ 5.55*	+ 5.55*	+ 5.55*	+ 5.55*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental benefits per hour:

All terms \$ 31.95

8-1556 Tm

Carpenter	08/01/2024

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Westchester

PARTIAL COUNTIES

Orange: South of but including the following, Waterloo Mills, Slate Hill, New Hampton, Goshen, Blooming Grove, Mountainville, east to the Hudson River.

Putnam: South of but including the following, Cold Spring, TompkinsCorner, Mahopac, Croton Falls, east to Connecticut border.

Suffolk: West of Port Jefferson and Patchogue Road to Route 112 to the Atlantic Ocean.

WAGES

Per hour: 07/01/2024

Core Drilling:

Driller \$ 46.25
+ 3.25*

Driller Helper \$ 36.28
+ 3.25*

Note: Hazardous Waste Pay Differential:

For Level C, an additional 15% above wage rate per hour

For Level B, an additional 15% above wage rate per hour

For Level A, an additional 15% above wage rate per hour

Note: When required to work on water: an additional \$ 3.00 per hour.

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SUPPLEMENTAL BENEFITS

Per hour:

Driller and Helper \$ 30.24

OVERTIME PAY

See (B, G, P) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

8-1536-CoreDriller

Carpenter - Building / Heavy&Highway	08/01/2024

JOB DESCRIPTION Carpenter - Building / Heavy&Highway

DISTRICT 11

ENTIRE COUNTIES

Putnam, Rockland, Westchester

WAGES

WAGES:(per hour)

Applies to CAPRENTER BUILDING/HEAVY & HIGHWAY/TUNNEL:

	07/01/2024	07/01/2025	07/01/2026
		Additional	Additional
Base Wage	\$ 42.76	\$ 1.25**	\$ 1.25**
	+\$6.62*		

*For all hours paid straight or premium.

**To be allocated at a later date.

SHIFT WORK

SHIFT DIFFERENTIAL: When it is mandated by a Government Agency irregular or off shift can be worked. The Carpenter shall receive an additional fifteen percent (15%) of wage plus applicable benefits.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$ 31.60

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

BUILDING:

Paid: See (1) on HOLIDAY PAGE.

Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE.

- Holidays that fall on Sunday will be observed Monday.

HEAVY&HIGHWAY/TUNNEL:

Paid: See (5, 6, 25) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

- Holidays that fall on Sunday will be observed Monday

- Must be employed during the five (5) work days immediately preceding a holiday or during the five (5) work days following the paid holiday to receive holiday pay

- If Employee is entitled to a paid holiday, the Employee is paid the Holiday wage and supplemental benefits whether they work or not. If Employee works the Holiday, the Employee will receive holiday pay (including supplemental benefits), plus the applicable premium wage for working the Holiday. If Employee works in excess of 8 hours on Holiday, then benefits will be paid for any hours in excess of 8 hours.

REGISTERED APPRENTICES

1 year terms at the following wage rates:

1st	2nd	3rd	4th
\$ 21.38	\$ 25.66	\$ 29.93	\$ 34.21
+3.84*	+3.84*	+3.84*	+3.84*

*For all hours paid straight or premium

SUPPLEMENTAL BENEFITS per hour:

All terms \$ 16.25

11-279.1B/HH

Electrician

08/01/2024

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond, Westchester

WAGES

Per hour: 07/01/2024

Service Technician \$ 37.40

Service and Maintenance on Alarm and Security Systems.

Maintenance, repair and /or replacement of defective (or damaged) equipment on, but not limited to, Burglar - Fire - Security - CCTV - Card Access - Life Safety Systems and associated devices. (Whether by service contract of T&M by customer request.)

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker: \$ 21.85

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 11, 15, 16, 17, 25, 26) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 15, 16, 17, 25, 26) on HOLIDAY PAGE

9-3H

Electrician

08/01/2024

JOB DESCRIPTION Electrician

DISTRICT 8

ENTIRE COUNTIES

Westchester

WAGES

Per hour:	07/01/2024	04/17/2025
*Electrician/A-Technician	\$ 56.75	\$ 58.75
Teledata	56.75	58.75

*All new installations of wiring, conduit, junction boxes and light fixtures for projects with a base bid of more than \$325,000. For projects with a base bid of \$325,000 or less, see Maintenance and Repair rates.

Note: On a job where employees are required to work on bridges over navigable waters, transmission towers, light poles, bosun chairs, swinging scaffolds , etc. 40 feet or more above the water or ground or under compressed air, or tunnel projects under construction or where assisted breathing apparatus is required, they will be paid at the rate of time and one-half for such work except on normal pole line or building construction work.

SUPPLEMENTAL BENEFITS

Per hour:		
Journeyworker	\$ 59.39	\$61.09

OVERTIME PAY

See (A, G, *J, P) on OVERTIME PAGE

*NOTE: Emergency work on Sunday and Holidays is at the time and one-half overtime rate.

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wage rates:

	07/01/2024	04/17/2025
1st term	\$ 16.00	\$16.00
2nd term	17.00	17.00
3rd term	19.00	19.00
4th term	21.00	21.00
MIJ 1-12 months	26.50	26.50
MIJ 13-18 months	30.00	30.00

Supplemental Benefits per hour:

	07/01/2024	04/17/2025
1st term	\$ 12.40	\$ 12.72
2nd term	15.07	15.89
3rd term	16.40	17.23
4th term	17.73	18.57
MIJ 1-12 months	15.72	15.89
MIJ 13-18 months	16.17	16.29

8-3/W

Electrician

08/01/2024

JOB DESCRIPTION Electrician

DISTRICT 8

ENTIRE COUNTIES

Westchester

WAGES

Per hour	07/01/2024	04/17/2025
Electrician -M	\$ 30.00	\$ 30.00
H - Telephone	30.00	30.00

All work with a base bid amount of \$325,000 or less. Including repairs and /or replacement of defective electrical and teledata equipment, all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls, and washing and cleaning of foregoing fixtures.

*If the project exceeds \$375,000 due to changes in the scope of work, an Electrician/A Technician must be part of the labor ratio.

SUPPLEMENTAL BENEFITS

	07/01/2024	04/17/2025
Electrician &		
H - Telephone	\$ 16.17	\$ 16.29

OVERTIME PAY

See (B, G, *J, P) on OVERTIME PAGE

*Note: Emergency work on Sunday and Holidays is at the time and one-half overtime rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

8-3m

Elevator Constructor

08/01/2024

JOB DESCRIPTION Elevator Constructor

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

PARTIAL COUNTIES

Rockland: Entire County except for the Township of Stony Point

Westchester: Entire County except for the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES

Per hour:

07/01/2024

03/17/2025

Elevator Constructor

\$ 80.35

\$ 83.37

Modernization &
Service/Repair

63.16

65.54

SUPPLEMENTAL BENEFITS

Per Hour:

Elevator Constructor

\$ 46.367

\$ 47.654

Modernization &
Service/Repairs

45.217

46.470

OVERTIME PAY

Constructor See (D, M, T) on OVERTIME PAGE.

Modern/Service See (B, F, S) on OVERTIME PAGE.

HOLIDAY

Paid: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES PER HOUR:

6 MONTH TERMS:

1st Term*
50%

2nd & 3rd Term*
50%

4th & 5th Term
55%

6th & 7th Term
65%

8th & 9th Term
75%

* Note: 1st, 2nd, 3rd Terms are based on Average wage of Constructor, Modernization & Service.
Terms 4 thru 9 Based on Journeyman's wage of classification Working in.

SUPPLEMENTAL BENEFITS:

07/01/2024

03/17/2025

Elevator Constructor

1st Term

\$ 0.00

\$ 0.00

2nd & 3rd Term

36.15

36.90

4th & 5th Term

37.19

37.99

6th & 7th Term

38.80

39.70

8th & 9th Term

40.41

41.40

Modernization &
Service/Repair

1st Term

\$ 0.00

\$ 0.00

2nd & 3rd Term

36.15

36.90

4th & 5th Term

37.19

37.99

6th & 7th Term

38.80

39.70

8th & 9th Term	40.41	41.40	4-1

Elevator Constructor	08/01/2024

JOB DESCRIPTION Elevator Constructor

DISTRICT 1

ENTIRE COUNTIES

Columbia, Dutchess, Greene, Orange, Putnam, Sullivan, Ulster

PARTIAL COUNTIES

Delaware: Towns of Andes, Bovina, Colchester, Davenport, Delhi, Harpersfield, Hemdon, Kortright, Meredith, Middletown, Roxbury, Hancock & Stamford

Rockland: Only the Township of Stony Point.

Westchester: Only the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES

Per Hour	07/01/2024	01/01/2025
Mechanic	\$ 70.15	\$ 73.07
Helper	70% of Mechanic Wage Rate	70% of Mechanic Wage Rate

SUPPLEMENTAL BENEFITS

Per hour	07/01/2024	01/01/2025
Journeyworker/Helper	\$ 37.885*	\$ 38.435*

(*)Plus 6% of regular hourly if less than 5 years of service. Plus 8% of regular hourly rate if more than 5 years of service.

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 15, 16) on HOLIDAY PAGE

Overtime: See (5, 6, 15, 16) on HOLIDAY PAGE

Note: When a paid holiday falls on Saturday, it shall be observed on Friday. When a paid holiday falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES

Wages per hour:

0-6 mo*	6-12 mo	2nd yr	3rd yr	4th yr
50 %	55 %	65 %	70 %	80 %

(*)Plus 6% of the hourly rate, no additional supplemental benefits.

Supplemental Benefits per hour worked:

Same as Journeyperson/Helper

1-138

Glazier	08/01/2024

JOB DESCRIPTION Glazier

DISTRICT 8

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES

Per hour:	07/01/2024	05/01/2025
		Additional
Glazier, Glass Tinting and Window Film	\$ 63.28	\$ 1.11***
Scaffolding, including swing scaffold	67.28	
*Mechanical Equipment	64.28	
**Repair & Maintenance	30.76	

*Mechanical equipment, scissor jacks, man lifts, booms & buckets 30' or more, but not pipe scaffolding.

**Repair & Maintenance- All repair & maintenance work on a particular building whenever performed, where the total cumulative Repair & Maintenance contract value is under \$193,000.

***To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per hour:	7/01/2024
Glazier, Glass Tinting Window Film, Scaffolding and Mechanical Equipment	\$ 42.13
Repair & Maintenance	24.62

OVERTIME PAY

See (B, E, Q, V) on OVERTIME PAGE
For 'Repair & Maintenance' see (B, B2, I, S) on overtime page.

HOLIDAY

Paid: See (5, 6, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE
For 'Repair & Maintenance'
Paid: See(5, 6, 16, 25)
Overtime: See(5, 6, 16, 25)

REGISTERED APPRENTICES

Wage per hour:
(1) year terms at the following wage rates:

	7/01/2024
1st term	\$ 22.34
2nd term	30.64
3rd term	40.87
4th term	50.14
Supplemental Benefits: (Per hour)	
1st term	\$ 19.27
2nd term	27.34
3rd term	32.85
4th term	36.01

8-1087 (DC9 NYC)

Insulator - Heat & Frost	08/01/2024

JOB DESCRIPTION	Insulator - Heat & Frost	DISTRICT 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour: 07/01/2024

Insulators	
Heat & Frost	\$ 71.01

SUPPLEMENTAL BENEFITS

Per Hour:

Insulators	\$ 36.76
Heat & Frost	

OVERTIME PAY

See (B, E, *Q, V) on OVERTIME PAGE
* Triple time for Labor Day (If worked)

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages:
1 year terms.
Wages Per Hour:

1st	2nd	3rd	4th
\$ 31.96	\$ 39.06	\$ 46.16	\$ 53.26

Supplemental Benefits:

\$ 16.56 \$ 20.23 \$ 23.91 \$ 27.06

4-12

Insulator - Heat & Frost

08/01/2024

JOB DESCRIPTION Insulator - Heat & Frost

DISTRICT 8

ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Westchester

WAGES

Per hour: 07/01/2024

Insulator \$ 60.85

Discomfort &
Additional Training** 63.92

Fire Stop Work* 32.97

* Applies on all exclusive Fire Stop Work (When contract is for Fire Stop work only). No apprentices on these contracts only.

**Applies to work requiring; garb or equipment worn against the body not customarily worn by insulators; psychological evaluation ;special training, including but not limited to "Yellow Badge" radiation training

Note: Additional \$0.50 per hour for work 30 feet or more above floor or ground level.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$ 38.25

Discomfort &
Additional Training 40.32

Fire Stop Work:
Journeyworker 19.48

OVERTIME PAY

See (B, E, E2, Q, *T) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Note: Last working day preceding Christmas and New Years day, workers shall work no later than 12:00 noon and shall receive 8 hrs pay.

Overtime: See (2*, 4, 6, 16, 25) on HOLIDAY PAGE.

*Note: Labor Day triple time if worked.

REGISTERED APPRENTICES

(1) year terms:

Insulator Apprentices:

1st	2nd	3rd	4th
\$ 32.97	\$ 38.54	\$ 44.12	\$ 49.70

Discomfort & Additional Training Apprentices:

1st	2nd	3rd	4th
\$ 34.51	\$ 40.38	\$ 46.27	\$ 52.16

Supplemental Benefits paid per hour:

Insulator Apprentices:

1st term	\$ 19.48
2nd term	23.23
3rd term	26.98
4th term	30.74

Discomfort & Additional Training Apprentices:

1st term	\$ 20.50
2nd term	24.47

3rd term	28.43	
4th term	32.39	
		8-91

Ironworker

08/01/2024

JOB DESCRIPTION Ironworker

DISTRICT 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES		
Per Hour:	07/01/2024	01/01/2025 Additional
Stone Derrickmen Rigger	\$ 75.40	\$ 1.64*
Stone Handset Derrickman	72.55	1.11*

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per hour:	
Stone Derrickmen Rigger	\$ 45.52
Stone Handset Derrickman	44.76

OVERTIME PAY

See (B, D1, *E, Q, **V) on OVERTIME PAGE
*Time and one-half shall be paid for all work on Saturday up to eight (8) hours and double time shall be paid for all work thereafter.
** Benefits same premium as wages on Holidays only

HOLIDAY

Paid: See (18) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 25) on HOLIDAY PAGE
Work stops at schedule lunch break with full day's pay.

REGISTERED APPRENTICES

Wage per hour:				
Stone Derrickmen Rigger:				
	1st	2nd	3rd	4th
07/01/2024	\$ 37.20	\$ 53.28	\$ 59.32	\$ 65.36
Supplemental Benefits:				
Per hour:				
07/01/2024	23.27	34.39	34.39	34.39
Stone Handset:				
1/2 year terms at the following hourly wage rate:				
	1st	2nd	3rd	4th
07/01/2024	\$ 35.78	\$ 51.04	\$ 56.79	\$ 62.55
Supplemental Benefits:				
Per hour:				
07/01/2024	22.95	34.08	34.08	34.08

9-197D/R

Ironworker

08/01/2024

JOB DESCRIPTION Ironworker

DISTRICT 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES		
Per Hour:	07/01/2024	01/01/2025
Ornamental	\$ 47.65	Additional
Chain Link Fence	47.65	\$ 1.25/hr*

Guide Rail 47.65

(*)To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker: \$ 66.29

OVERTIME PAY

See (B, B1, Q, V) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

1 year terms

07/01/2024

1st Term \$ 25.98

2nd Term 28.45

3rd Term 30.80

4th Term 34.39

Supplemental Benefits per hour:

1st Term \$ 16.29

2nd Term 18.29

3rd Term 19.29

4th Term 20.29

4-580-Or

Ironworker

08/01/2024

JOB DESCRIPTION Ironworker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

PER HOUR:

07/01/2024

01/01/2025

Ironworker:

Structural \$ 57.20

Bridges

Machinery

Additional

\$ 1.75/Hr.*

(*)To be allocated at a later date.

SUPPLEMENTAL BENEFITS

PER HOUR PAID:

Journeyman \$ 89.85

OVERTIME PAY

See (B, B1, Q, *V) on OVERTIME PAGE

*NOTE: Benefits are calculated for every hour paid.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES PER HOUR:

6 month terms at the following rate:

1st \$ 30.23

2nd 30.83

3rd - 6th 31.44

Supplemental Benefits

PER HOUR PAID: 62.47

4-40/361-Str

Ironworker

08/01/2024

JOB DESCRIPTIONIronworker

DISTRICT4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES
Rockland: Southern section - south of Convent Road and east of Blue Hills Road.

WAGES

Per hour: 07/01/2024

Reinforcing &
Metal Lathing \$ 56.95

"Base" Wage 55.20
plus \$ 1.75

"Base" Wage is used to calculate overtime hours only.

SUPPLEMENTAL BENEFITS

Per hour:

Reinforcing & Metal Lathing \$ 44.63

OVERTIME PAY

See (B, E, Q, *X) on OVERTIME PAGE

*Only \$23.50 per Hour for non worked hours

Supplemental Benefit Premiums for Overtime Hours worked:

Time & One Half \$ 51.13

Double Time 57.63

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 13, *18, **19, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wage rates:

Prior to 01/01/2020:			
1st term	2nd term	3rd term	4th Term
Wage Per Hour:			
\$ 22.55	\$ 28.38	\$ 34.68	\$ 37.18
"Base" Wage			
\$21.00	\$26.80	\$33.10	\$35.60
plus \$1.55	plus \$1.58	plus \$1.58	plus \$1.58

"Base" Wage is used to calculate overtime hours ONLY.

SUPPLEMENTAL BENIFITS				
Per Hour:				
1st term	2nd term	3rd term	4th Term	
\$18.17	\$21.34	\$22.00	\$22.50	

After 01/01/2020:			
1st term	2nd term	3rd term	4th Term
Wage Per Hour:			
\$ 22.55	\$ 23.60	\$ 24.60	\$ 25.65
"Base" Wage			
\$21.00	\$22.00	\$23.00	\$24.00
plus \$1.55	plus \$1.60	plus \$1.60	plus \$1.65

"Base" Wage is used to calculate overtime hours ONLY.

SUPPLEMENTAL BENIFITS				
Per Hour:				
1st term	2nd term	3rd term	4th Term	
\$18.40	\$17.40	\$16.45	\$15.45	

Laborer - Building

08/01/2024

<

Laborer - Heavy&Highway

08/01/2024

JOB DESCRIPTION Laborer - Heavy&Highway		DISTRICT 8	
ENTIRE COUNTIES Putnam, Westchester			
WAGES **PUTNAM: APPLIES TO ALL HEAVY & HIGHWAY WORK EXCLUDING HIGHWAYS, STREETS, AND BRIDGES**			

GROUP I: Blaster, Quarry Master, Curbs/Asphalt Screedman, Pipe Jacking and Boring Operations Operator, Qualified Dead Condition Pipe Fuser (B Mechanic)			
GROUP II: Burner, Drillers(jumbo, joy, wagon, air track, hydraulic), Drill Operator, Self Contained Rotary Drill, Curbs, Raker, Bar Person, Concrete Finisher.			

GROUP III: Pavement Breakers, Jeep Operator, Jack Hammer, Pneumatic Tools (all), Gas Driller, Guniting, Railroad Spike Puller, Pipelayer, Chain Saw, Deck winches on scows, Power Buggy Operator, Power Wheelbarrow Operator, Bar Person Helper, Compressed Airline, Water Jet Lance.

GROUP IV: Concrete Laborers, Asph. Worker, Rock Scaler, Vibrator Oper., Bit Grinder, Air Tamper, Pumps, Epoxy (adhesives, fillers and troweled on), Barco Rammer, Concrete Grinder, Crack Router Operator, Guide Rail-digging holes and placing concrete and demolition when not to be replaced, distribution of materials and tightening of bolts.

GROUP V: Drillers Helpers, Common Laborer, Mason Tenders, Signal Person, Pit Person, Truck Spotter, Powder Person, Landscape/Nursery Person, Dump Person, Temp. Heat.

GROUP VIA: Asbestos/Toxic Waste Laborer-All removal (Roads, Tunnels, Landfills, etc.) Confined space laborer, Bio-remediation, Phyto-remediation, Lead or Hazardous material, Abatement Laborer.

Wages:(per hour) 07/01/2024

GROUP I	\$ 50.62*
GROUP II	49.27*
GROUP III	48.87*
GROUP IV	48.52*
GROUP V	48.17*
GROUP VIA	50.17*
Operator Qualified	
Gas Mechanic(A Mech)	60.62*
Flagperson	41.82*

*NOTE: To calculate overtime premiums, deduct \$0.10 from above wages

SHIFT WORK

A shift premium will be paid on Public Work contracts for off-shift or irregular shift work when mandated by the NYS D.O.T. or other Governmental Agency contracts. Employees shall receive an additional 15% per hour above current rate for all regular and irregular shift work. Premium pay shall be calculated using the 15% per hour differential as base rate.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker:

First 40 Hours	
Per Hour	\$ 27.78
Over 40 Hours	
Per Hour	21.03

OVERTIME PAY

See (B, E, P, R, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE

NOTE: For Holiday Overtime: 5, 6 - Code 'S' applies

For Holiday Overtime: 8, 15, 25, 26 - Code 'R' applies

REGISTERED APPRENTICES

	1st term	2nd term	3rd term	4th term
	1-1000hrs	1001-2000hrs	2001-3000hrs	3001-4000hrs
07/01/2024	\$ 28.07	\$ 33.12	\$ 37.94	\$ 42.76

Supplemental Benefits per hour:

1st term	\$ 3.85 - After 40 hours: \$ 3.50
2nd term	\$ 3.95 - After 40 hours: 3.50
3rd term	\$ 4.45 - After 40 hours: 3.90
4th term	\$ 5.00 - After 40 hours: 4.40

8-60H/H

Laborer - Tunnel

08/01/2024

JOB DESCRIPTION Laborer - Tunnel

DISTRICT 11

ENTIRE COUNTIES

Columbia, Dutchess, Greene, Orange, Otsego, Putnam, Rockland, Sullivan, Ulster, Westchester

PARTIAL COUNTIES

Chenango: Townships of Columbus, Sherburne and New Berlin.

Delaware: Townships of Andes, Bovina, Middletown, Roxbury, Franklin, Hamden, Stamford, Delhi, Kortright, Harpersfield, Merideth and Davenport.

WAGES

Class 1: All support laborers/sandhogs working above the shaft or tunnel.

Class 2: All laborers/sandhogs working in the shaft or tunnel.

Class 4: Safety Miners

Class 5: Site work related to Shaft/Tunnel

WAGES: (per hour)

	07/01/2024	06/01/2025
Class 1	\$ 57.05	\$ 58.55
Class 2	59.20	60.70
Class 4	65.60	67.10
Class 5	49.90	51.40

Toxic and hazardous waste, lead abatement and asbestos abatement work will be paid an additional \$ 3.00 an hour.

SHIFT WORK

SHIFT DIFFERENTIAL...On all Government mandated irregular shift work:

- Employee shall be paid at time and one half the regular rate Monday through Friday.
- Saturday shall be paid at 1.65 times the regular rate.
- Sunday shall be paid at 2.15 times the regular rate.

SUPPLEMENTAL BENEFITS

Per hour:

Benefit 1	\$ 36.98	\$ 38.23
Benefit 2	55.39	59.99
Benefit 3	74.58	76.73

Benefit 1 applies to straight time hours, paid holidays not worked.

Benefit 2 applies to over 8 hours in a day (M-F), irregular shift work hours worked, and Saturday hours worked.

Benefit 3 applies to Sunday and Holiday hours worked.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 15, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 15, 16, 25) on HOLIDAY PAGE

When a recognized Holidays falls on Saturday or Sunday, holidays falling on Saturday shall be recognized or observed on Friday and holidays falling on Sunday shall be recognized or observed on Monday. Employees ordered to work on the Saturday or Sunday of the holiday or on the recognized or the observed Friday or Monday for those holidays falling on Saturday or Sunday shall receive double time the established rate and benefits for the holiday.

REGISTERED APPRENTICES

FOR APPRENTICE RATES, refer to the appropriate Laborer Heavy & Highway wage rate contained in the wage schedule for the County and location where the work is to be performed.

11-17/60/235/754Tun

Lineman Electrician

08/01/2024

JOB DESCRIPTION Lineman Electrician

DISTRICT 6

ENTIRE COUNTIES

Westchester

WAGES

A Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors, assembly of all electrical materials, conduit, pipe or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

Crane Operators: Operation of any type of crane on line projects.

Crawler Backhoe: Operation of tracked excavator/crawler backhoe with 1/2 yard bucket or larger on line projects.

Digging Machine Operator: All other digging equipment and augering on line projects.

A Groundman/Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator equipment/operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

NOTE: Includes Teledata Work within ten (10) feet of High Voltage Transmission Lines. Also includes digging of holes for poles, anchors, footer, and foundations for electrical equipment.

Below rates apply to electrical overhead and underground distribution and maintenance work and overhead and underground transmission line work, electrical substations, switching structures, continuous pipe-type underground fluid or gas filled transmission conduit and cable installations, maintenance jobs or projects, railroad catenary installations and maintenance, third rail installations, the bonding of rails and the installation of fiber optic cable. Includes access matting for line work.

Per hour: 07/01/2024

Group A:

Lineman, Tech, Welder	\$ 61.91
Crane, Crawler Backhoe	61.91
Cable Splicer-Pipe Type	68.10
Cert. Welder-Pipe Type	65.01

Group B:

Digging Mach Operator	55.72
Tractor Trailer Driver	52.62
Groundman, Truck Driver	49.53
Equipment Mechanic	49.53
Flagman	37.15

Additional \$1.00 per hour for entire crew when a helicopter is used.

SHIFT WORK

THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

1ST SHIFT	8:00 AM TO 4:30 PM REGULAR RATE
2ND SHIFT	4:30 PM TO 1:00 AM REGULAR RATE PLUS 17.3%
3RD SHIFT	12:30 AM TO 9:00 AM REGULAR RATE PLUS 31.4%

SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

07/01/2024

Group A	\$ 30.90
	*plus 7% of the hourly wage paid

Group B	\$ 26.90
	*plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE. NOTE: Double time for emergency work designated by the Dept. of Jurisdiction.

WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid	See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.
Overtime	See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyworker's Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour:

07/01/2024

\$ 26.90

*plus 7% of
the hourly
wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

6-1249aWest

Lineman Electrician - Teledata

08/01/2024

JOB DESCRIPTION Lineman Electrician - Teledata

DISTRICT 6

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per hour:

For outside work, stopping at first point of attachment (demarcation).

07/01/2024

01/01/2025

Cable Splicer	\$ 39.24	\$ 40.81
Installer, Repairman	\$ 37.24	\$ 38.73
Teledata Lineman	\$ 37.24	\$ 38.73
Tech., Equip. Operator	\$ 37.24	\$ 38.73
Groundman	\$ 19.74	\$ 20.53

NOTE: EXCLUDES Teledata work within ten (10) feet of High Voltage (600 volts and over) transmission lines. For this work please see LINEMAN.

SHIFT WORK

THE FOLLOWING RATES APPLY WHEN THE CONTRACTING AGENCY MANDATES MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION ARE WORKED. WHEN TWO (2) OR THREE (3) SHIFTS ARE WORKED THE FOLLOWING RATES APPLY:

1ST SHIFT	REGULAR RATE
2ND SHIFT	REGULAR RATE PLUS 10%
3RD SHIFT	REGULAR RATE PLUS 15%

SUPPLEMENTAL BENEFITS

Per hour:

07/01/2024

01/01/2025

Journeyworker	\$ 5.70	\$ 5.70
	*plus 3% of the hour wage paid	*plus 3% of the hour wage paid

*The 3% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16) on HOLIDAY PAGE

6-1249LT - Teledata

Lineman Electrician - Traffic Signal, Lighting

08/01/2024

JOB DESCRIPTION Lineman Electrician - Traffic Signal, Lighting

DISTRICT 6

ENTIRE COUNTIES

Westchester

WAGES

Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors which includes, but is not limited to road loop wires; conduit and plastic or other type pipes that carry conductors, flex cables and connectors, and to oversee the encasement or burial of such conduits or pipes.

Crane Operators: Operation of any type of crane on Traffic Signal/Lighting projects.

Crawler Backhoe: Operation of tracked excavator/crawler backhoe with 1/2 yard bucket or larger on Traffic Signal/Lighting projects.

Digging Machine Operator: All other digging equipment and augering on Traffic Signal/Lighting projects.

A Groundman/Groundman Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator/equipment operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

A flagger's duties shall consist of traffic control only.

Per hour: 07/01/2024

Group A:

Lineman, Technician	\$ 55.95
Crane, Crawler Backhoe	55.95
Certified Welder	58.75

Group B:

Digging Machine	50.36
Tractor Trailer Driver	47.56
Groundman, Truck Driver	44.76
Equipment Mechanic	44.76
Flagman	33.57

Above rates are applicable for installation, testing, operation, maintenance and repair on all Traffic Control (Signal) and Illumination (Lighting) projects, Traffic Monitoring Systems, and Road Weather Information Systems. Includes digging of holes for poles, anchors, footer foundations for electrical equipment; assembly of all electrical materials or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

SHIFT WORK

THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

1ST SHIFT	8:00 AM TO 4:30 PM REGULAR RATE
2ND SHIFT	4:30 PM TO 1:00 AM REGULAR RATE PLUS 17.3%
3RD SHIFT	12:30 AM TO 9:00 AM REGULAR RATE PLUS 31.4%

SUPPLEMENTAL BENEFITS

Per hour worked:

07/01/2024

Group A

\$ 30.90
*plus 7% of
the hourly
wage paid

Group B

\$ 26.90
*plus 7% of
the hourly
wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE. *Note* Double time for emergency work designated by the Dept. of Jurisdiction.

WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid: See (5, 6, 8, 13, 25) on HOLIDAY PAGE and Governor of NYS Election Day.
Overtime: See (5, 6, 8, 13, 25) on HOLIDAY PAGE and Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyworker's Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour:

07/01/2024

\$ 26.90
*plus 7% of
the hourly
wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

6-1249aWestLT

Mason - Building

08/01/2024

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES
Nassau, Rockland, Suffolk, Westchester

WAGES

Per hour:	07/01/2024	12/02/2024 Additional
Tile Setters	\$ 63.91	\$ 0.71*

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per Hour:	\$ 27.66* + \$8.50

* This portion of benefits subject to same premium rate as shown for overtime wages.

OVERTIME PAY

See (B, E, Q, V) on OVERTIME PAGE
Work beyond 10 hours on Saturday shall be paid at double the hourly wage rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

(750 hour) term at the following wage rate:

Term:										
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	
1-750	751-1500	1501-2250	2251-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6750	6501-7000	
07/01/2024	\$22.19	\$27.21	\$34.45	\$39.46	\$43.07	\$46.58	\$50.23	\$55.24	\$57.71	\$62.00

Supplemental Benefits per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
07/01/2024									

\$12.55*	\$12.55*	\$15.36*	\$15.36*	\$16.36*	\$17.86*	\$18.86*	\$18.86*	\$18.86*	\$24.11*
+\$.76	+\$.81	+\$.91	+\$.96	+\$ 1.43	+\$ 1.48	+\$ 1.91	+\$ 1.97	+\$ 4.57	+\$ 5.18

* This portion of benefits subject to same premium rate as shown for overtime wages.

9-7/52A

Mason - Building

08/01/2024

JOB DESCRIPTION Mason - Building

DISTRICT 11

ENTIRE COUNTIES
Putnam, Rockland, Westchester

PARTIAL COUNTIES
Orange: Only the Township of Tuxedo.

WAGES
Per hour:

07/01/2024

Bricklayer	\$ 47.44
Cement Mason	47.44
Plasterer/Stone Mason	47.44
Pointer/Caulker	47.44

Additional \$1.00 per hour for power saw work
Additional \$0.50 per hour for swing scaffold or staging work

SHIFT WORK
SHIFT WORK: When shift work or an irregular workday is mandated or required by state, federal, county, local or other governmental agency contracts, the following premiums apply:

Irregular workday requires 15% premium

Second shift an additional 15% of wage plus benefits to be paid

Third shift an additional 25% of wage plus benefits to be paid

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman \$ 38.50

OVERTIME PAY
OVERTIME:

Cement Mason See (B, E, Q, W) on OVERTIME PAGE.

All Others See (B, E, Q) on OVERTIME PAGE.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE
Whenever any of the above holidays fall on Sunday, they will be observed on Monday. Whenever any of the above holidays fall on Saturday, they will be observed on Friday.

REGISTERED APPRENTICES
Wages per hour:

750 hour terms at the following percentage of Journeyman's wage

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Supplemental Benefits per hour

750 hour terms at the following percentage of journeyman supplements

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Apprentices indentured before June 1st, 2011 receive full journeyman benefits

11-5wp-b

Mason - Building

08/01/2024

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Building

	07/01/2024	01/01/2025
Wages per hour:		Additional
Mosaic & Terrazzo Mechanic	\$ 60.98	\$ 1.06*
Mosaic & Terrazzo Finisher	58.96	

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per hour:

Mosaic & Terrazzo Mechanic	\$ 31.36* + \$9.78
Mosaic & Terrazzo Finisher	\$ 31.36* + \$9.77

*This portion of benefits subject to same premium rate as shown for overtime wages.

OVERTIME PAY

See (A, E, Q) on OVERTIME PAGE

07/01/2024- Deduct \$7.00 from hourly wages before calculating overtime.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
Easter Sunday is an observed holiday. Holidays falling on a Saturday will be observed on that Saturday. Holidays falling on a Sunday will be celebrated on the Monday.

REGISTERED APPRENTICES

Wages Per hour:

	1st 0- 1500	2nd 1501- 3000	3rd 3001- 3750	4th 3751- 4500	5th 4501- 5250	6th 5251- 6000
07/01/2024	\$ 25.19	\$ 32.39	\$ 38.18	\$ 40.78	\$ 49.00	\$ 55.75
Supplemental Benefits per hour:						
07/01/2024	\$7.12* + 3.43	\$9.16* + 4.40	\$17.22* + 5.87	\$23.86* + 6.84	\$24.86* + 7.83	\$27.36* + 8.80

*This portion of benefits subject to same premium rate as shown for overtime wages.

9-7/3

Mason - Building	08/01/2024

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:	07/01/2024	01/06/2025
		Additional

Building-Marble Restoration:

Marble, Stone &	\$ 47.72	\$ 0.57*
Terrazzo Polisher		

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker:

Building-Marble Restoration:
Marble, Stone &
Polisher \$ 31.50

OVERTIME PAY
See (B, *E, Q, V) on OVERTIME PAGE
* On Saturdays, 8th hour and successive hours paid at double hourly rate.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
WAGES per hour:

900 hour term at the following wage:

1st 1- 900	2nd 901- 1800	3rd 1801- 2700	4th 2701
\$ 33.40	\$ 38.18	\$ 42.94	\$ 47.72
Supplemental Benefits Per Hour: 29.06	29.87	30.69	31.50

9-7/24-MP

Mason - Building

08/01/2024

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES
Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES
Per Hour:

	07/01/2024	01/06/2025 Additional \$ 0.75*
Marble Cutters & Setters	\$ 63.92	

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS
Per Hour:

Journeyworker \$ 40.05

OVERTIME PAY
See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage Per Hour:
07/01/2024

750 hour terms at the following wage

1st	2nd	3rd	4th	5th	6th	7th	8th
0- 3000	3001- 3750	3751- 4500	4501- 5250	5251- 6000	6001- 6750	6751- 7500	7500+
\$ 27.01	\$ 40.52	\$ 43.88	\$ 47.26	\$ 50.64	\$ 54.32	\$ 60.71	\$ 63.92

Supplemental Benefits per hour:

07/01/2024

1st	2nd	3rd	4th	5th	6th	7th	8th
\$ 26.42	\$ 29.76	\$ 30.61	\$ 31.44	\$ 32.28	\$ 37.55	\$ 39.23	\$ 40.05

Mason - Building

08/01/2024

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES
Nassau, Rockland, Suffolk, Westchester

WAGES		
Per hour:	07/01/2024	12/02/2024
		Additional
Tile Finisher	\$ 49.08	\$ 0.59*

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per Hour:	
	\$ 24.56*
	+ 8.32

*This portion of benefits is subjected to same premium rate as shown for overtime wages

OVERTIME PAY

See (B, E, Q, *V) on OVERTIME PAGE
*Work beyond 10 hours on a Saturday shall be paid at double the hourly wage rate.

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

9-7/88A-tf

Mason - Building

08/01/2024

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES		
Per hour:	07/01/2024	01/06/2025
Marble, Stone,		Additional
Maintenance Finishers:	\$ 27.72	\$ 0.41*

Note 1: An additional \$2.00 per hour
for time spent grinding floor using
"60 grit" and below.
Note 2: Flaming equipment operator
shall be paid an additional \$25.00 per day.

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per Hour:	
Marble, Stone	
Maintenance Finishers:	\$ 15.74

OVERTIME PAY

See (B, *E, Q, V) on OVERTIME PAGE
*Double hourly rate after 8 hours on Saturday

HOLIDAY

Paid:	See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE
Overtime:	See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE
1st term apprentice gets paid for all observed holidays.	

REGISTERED APPRENTICES

WAGES per hour:	
	07/01/2024
0-750	\$ 22.32
751-1500	23.04
1501-2250	23.75
2251-3000	24.48

3001-3750	25.56
3751-4500	27.00
4501+	27.72

Supplemental Benefits:
Per hour:

0-750	12.69
751-1500	13.10
1501-2250	13.51
2251-3000	13.91
3001-3750	14.52
3751-4500	15.33
4501+	15.74

9-7/24M-MF

Mason - Building / Heavy&Highway

08/01/2024

JOB DESCRIPTION Mason - Building / Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour: 07/01/2024 01/06/2025
Additional

Marble-Finisher \$ 49.99 \$ 0.53*

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Journeyworker:
Per hour

Marble- Finisher \$ 37.39

OVERTIME PAY

See (B, E, Q, V) on OVERTIME PAGE

Work beyond 8 hours on a Saturday shall be paid at double the rate.

HOLIDAY

Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

When an observed holiday falls on a Sunday, it will be observed the next day.

9-7/20-MF

Mason - Heavy&Highway

08/01/2024

JOB DESCRIPTION Mason - Heavy&Highway

DISTRICT 11

ENTIRE COUNTIES

Putnam, Rockland, Westchester

PARTIAL COUNTIES

Orange: Only the Township of Tuxedo.

WAGES

Per hour: 07/01/2024

Bricklayer	\$ 47.94
Cement Mason	47.94
Marble/Stone Mason	47.94
Plasterer	47.94
Pointer/Caulker	47.94

Additional \$1.00 per hour for power saw work

Additional \$0.50 per hour for swing scaffold or staging work

SHIFT WORK

When shift work or an irregular workday is mandated or required by state, federal, county, local or other governmental contracts, the following rates apply:

Irregular workday requires 15% premium

Second shift an additional 15% of wage plus benefits to be paid

Third shift an additional 25% of wage plus benefits to be paid

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 38.50

OVERTIME PAY

Cement Mason See (B, E, Q, W)

All Others See (B, E, Q,)

HOLIDAY

Paid: See (5, 6, 16, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

- Whenever any of the above holidays fall on Sunday, they will be observed on Monday. Whenever any of the above holidays fall on Saturday, they will be observed on Friday.

- Supplemental Benefits are not paid for paid Holiday

- If Holiday is worked, Supplemental Benefits are paid for hours worked.

- Whenever an Employee works within three (3) calendar days before a holiday, the Employee shall be paid for the Holiday.

REGISTERED APPRENTICES

Wages per hour:

750 hour terms at the following percentage of Journeyman's wage

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Supplemental Benefits per hour

750 hour terms at the following percentage of journeyman supplements

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Apprentices indentured before June 1st, 2011 receive full journeyman benefits

11-5WP-H/H

Operating Engineer - Building

08/01/2024

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Putnam, Queens, Richmond, Westchester

PARTIAL COUNTIES

Dutchess: that part of Dutchess County lying south of the North City Line of the City of Poughkeepsie.

WAGES

NOTE: Construction surveying

Party Chief--One who directs a survey party

Instrument Man--One who runs the instrument and assists Party Chief.

Rodman--One who holds the rod and assists the Survey Crew

Wages:(Per Hour) 07/01/2024

Building Construction:

Party Chief	\$ 79.99
Instrument Man	60.36
Rodman	40.45

Steel Erection:

Party Chief	83.13
Instrument Man	64.21
Rodman	44.33

Heavy Construction-NYC counties only:
(Foundation, Excavation.)

Party Chief	88.06
Instrument man	65.66
Rodman	55.70

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2024
Building Construction	\$ 28.63* +\$ 7.65
Steel Erection	29.23* + 7.65
Heavy Construction	30.04* + 7.64

* This portion subject to SAME premium as wages

Non-Worked Holiday Supplemental Benefit:	21.83

OVERTIME PAY

See (A, B, E, Q) on OVERTIME PAGE

Code "A" applies to Building Construction and has double the rate after 7 hours on Saturdays.

Code "B" applies to Heavy Construction and Steel Erection and had double the rate after 8 hours on Saturdays.

HOLIDAY

Paid:	See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE
Overtime:	See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

9-15Db

Operating Engineer - Building	08/01/2024

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

PARTIAL COUNTIES

Dutchess: All the counties of Westchester and Putnam and the southern part of Dutchess County defined by the northern boundary line of the City of Poughkeepsie, then due east to Route 115, then north along Route 115 to Bedell Road, then east along Bedell Road to Van Wagner Road, then north along Van Wagner Road to Bower Road, then east along Bower Road to Route 44 and along Route 44 east to Route 343, then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to the border line of the State of Connecticut and bordered on the west by the middle of the Hudson River.

WAGES

GROUP I:

Cranes (All Types up to 49 tons), Boom Trucks, Cherry Pickers (All Types), Clamshell Crane, Derrick (Stone and Steel), Dragline, Franki Pile Rig or similar, High Lift (Lull or similar) with crane attachment and winch used for hoisting or lifting, Hydraulic Cranes, Pile Drivers, Potain and similar.

Cranes (All types 50-99 tons), Drill Rig Casa Grande (CAT or similar), Franki Pile Rig or similar, Hydraulic Cranes (All types including Crawler Cranes- No specific boom length).

Cranes (All types 100 tons and over), All Tower Cranes, All Climbing Cranes irrespective of manufacturer and regardless of how the same is rigged, Franki Pile Rig or similar, Conventional Cranes (All types including Crawler Cranes-No specific boom length), Hydraulic Cranes.

GROUP I-A: Barber Green Loader-Euclid Loader, Bulldozer, Carrier-Trailer Horse, Concrete Cleaning Decontamination Machine Operator, Concrete-Portable Hoist, Conway or Similar Mucking Machines, Elevator & Cage, Excavators all types, Front End Loaders, Gradall, Shovel, Backhoe, etc.(Crawler or Truck), Heavy Equipment Robotics Operator/Mechanic, Hoist Engineer-Material, Hoist Portable Mobile Unit, Hoist(Single, Double or Triple Drum), Horizontal Directional Drill Locator, Horizontal Directional Drill Operator and Jersey Spreader, Letourneau or Tournapull(Scrapers over 20 yards Struck), Lift Slab Console, etc., Lull HiLift or Similar, Master Environmental Maintenance Mechanics, Mucking Machines Operator/Mechanic or Similar Type, Overhead Crane, Pavement Breaker(Air Ram), Paver(Concrete), Post Hole Digger, Power House Plant, Road Boring Machine, Road Mix Machine, Ross Carrier and Similar Machines, Rubber tire double end backhoes and similar machines, Scoopmobile Tractor-Shovel Over 1.5 yards, Shovel (Tunnels), Spreader (Asphalt) Telephie(Cableway), Tractor Type Demolition Equipment, Trenching Machines-Vermeer Concrete Saw Trencher and Similar, Ultra High Pressure Waterjet Cutting Tool System, Vacuum Blasting Machine operator/mechanic, Winch Truck A Frame.

GROUP I-B: Compressor (Steel Erection), Mechanic (Outside All Types), Negative Air Machine (Asbestos Removal), Push Button (Buzz Box) Elevator.

GROUP II: Compactor Self-Propelled, Concrete Pump, Crane Operator in Training (Over 100 Tons), Grader, Machines Pulling Sheep's Foot Roller, Roller (4 ton and over), Scrapers (20 yards Struck and Under), Vibratory Rollers, Welder.

GROUP III-A: Asphalt Plant, Concrete Mixing Plants, Forklift (All power sources), Joy Drill or similar, Tractor Drilling Machine, Loader (1 1/2 yards and under), Portable Asphalt Plant, Portable Batch Plant, Portable Crusher, Skid Steer (Bobcat or similar), Stone Crusher, Well Drilling Machine, Well Point System.

GROUP III-B: Compressor Over 125 cu. Feet, Conveyor Belt Machine regardless of size, Compressor Plant, Ladder Hoist, Stud Machine.

GROUP IV-A: Batch Plant, Concrete Breaker, Concrete Spreader, Curb Cutter Machine, Finishing Machine-Concrete, Fine Grading Machine, Hepa Vac Clean Air Machine, Material Hopper(sand, stone, cement), Mulching Grass Spreader, Pump Gypsum etc, Pump-Plaster-Grout-Fireproofing. Roller(Under 4 Ton),Spreading and Fine Grading Machine, Steel Cutting Machine, Siphon Pump, Tar Joint Machine, Television Cameras for Water, Sewer, Gas etc. Turbo Jet Burner or Similar Equipment, Vibrator (1 to 5).

GROUP IV-B: Compressor (all types), Heater (All Types), Fire Watchman, Lighting Unit (Portable & Generator) Pump, Pump Station(Water, Sewer, Portable, Temporary), Welding Machine (Steel Erection & Excavation).

GROUP V: Mechanics Helper, Motorized Roller (walk behind), Stock Attendant, Welder's Helper, Maintenance Engineer Crane(75 ton and over).

Group VI-A: Welder Certified

GROUP VI-B: Utility Man, Warehouse Man.

WAGES: (per hour)

07/01/2024

GROUP I

Cranes- up to 49 tons \$ 67.43

Cranes- 50 tons to 99 tons 69.77

Cranes- 100 tons and over 79.64

GROUP I-A 59.04

GROUP I-B 54.41

GROUP II 56.97

GROUP III-A 54.88

GROUP III-B 52.25

GROUP IV-A 54.33

GROUP IV-B 45.94

GROUP V 49.53

Group VI-A 57.96

GROUP VI-B

Utility Man 47.00

Warehouse Man 49.26

An additional 20% to wage when required to wear protective equipment on hazardous/toxic waste projects.

Engineers operating cranes with booms 100 feet but less than 149 feet in length will be paid an additional \$2.00 per hour.

Engineers operating cranes with booms 149 feet or over in length will be paid an additional \$3.00 per hour.

Loader operators over 5 cubic yard capacity additional .50 per hour.

Shovel operators over 4 cubic yard capacity additional \$1.00 per hour.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$ 32.32

OVERTIME PAY

See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE

8-137B

Operating Engineer - Heavy&Highway

08/01/2024

JOB DESCRIPTION Operating Engineer - Heavy&Highway

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

PARTIAL COUNTIES

Dutchess: All the counties of Westchester and Putnam and the southern part of Dutchess County defined by the northern boundary line of the City of Poughkeepsie, then due east to Route 115, then north along Route 115 to Bedell Road, then east along Bedell Road to Van Wagner Road, then north along Van Wagner Road to Bower Road, then east along Bower Road to Route 44 and along Route 44 east to Route 343, then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to the border line of the State of Connecticut and bordered on the west by the middle of the Hudson River.

WAGES

GROUP I: Boom Truck, Cherry Picker, Clamshell, Crane, (Crawler, Truck), Dragline, Drill Rig (Casa Grande, Cat, or Similar), Floating Crane (Crane on Barges) under 100 tons, Gin Pole, Hoist Engineer-Concrete (Crane-Derrick-Mine Hoist), Knuckle Boom Crane, Rough Terrain Crane.

GROUP I-A: Auger (Truck or Truck Mounted), Boat Captain, Bulldozer-All Sizes, Central Mix Plant Operator, Chipper (all types), Close Circuit T.V., Combination Loader/Backhoe, Compactor with Blade, Concrete Finishing Machine, Gradall, Grader (Motor Grader), Elevator & Cage (Materials or Passenger), Excavator (and all attachments), Front End Loaders (1 1/2 yards and over), High Lift Lull and similar, Hoist (Single, Double, Triple Drum), Hoist Portable Mobile Unit, Hoist Engineer (Material), Jack and Bore Machine, Log Skidders, Mill Machines, Mucking Machines, Overhead Crane, Paver (concrete), Post Pounder (of any type), Push Cats, Road Reclaimer, Robot Hammer (Brokk or similar), Robotic Equipment (Scope of Engineer Schedule), Ross Carrier and similar, Scrapers (20 yard struck and over), Side Boom, Slip Form Machine, Spreader (Asphalt), Trenching Machines (Telephies-Vermeer Concrete Saw), Tractor Type Demolition Equipment, Vacuum Truck. Vibratory Roller(Riding) or Roller used in mainline paving operations.

GROUP I-B: Asphalt Mobile Conveyor/Transfer Machine, Road Paver (Asphalt).

GROUP II-A: Ballast Regulators, Compactor Self Propelled, Fusion Machine, Rail Anchor Machines, Roller (4 ton and over), Scrapers (20 yard struck and under).

GROUP II-B: Mechanic (Outside) All Types, Shop Mechanic.

GROUP III: Air Tractor Drill, Asphalt Plant, Batch Plant, Boiler (High Pressure), Concrete Breaker (Track or Rubber Tire), Concrete Pump, Concrete Spreader, Excavator Drill, Farm Tractor, Forklift (all types), Gas Tapping (Live), Hydroseeder, Loader (1 1/2 yards and under), Locomotive (all sizes), Machine Pulling Sheeps Foot Roller, Portable Asphalt Plant, Portable Batch Plant, Portable Crusher (Apprentice), Powerhouse Plant, Roller (under 4 ton), Sheer Excavator, Skid Steer/Bobcat, Stone Crusher, Sweeper (with seat), Well Drilling Machine.

GROUP IV: Service Person (Grease Truck), Deckhand.

GROUP IV-B: Conveyor Belt Machine (Truck Mounted), Heater (all types), Lighting Unit (Portable), Maintenance Engineer (For Crane Only), Mechanics Helper, Pump (Fireproofing), Pumps-Pump Station/Water/Sewer/Gypsum/Plaster, etc., Pump Truck (Sewer Jet or Similar), Welders Helper, Welding Machine (Steel Erection), Well Point System.

GROUP V: All Tower Cranes-All Climbing Cranes and all cranes of 100-ton capacity or greater (3900 Manitowac or similar) irrespective of manufacturer and regardless of how the same is rigged, Hoist Engineer (Steel), Engineer-Pile Driver, Jersey Spreader, Pavement Breaker/Post Hole Digger.

WAGES: Per hour: 07/01/2024

Group I	\$ 68.63
Group I-A	60.42
Group I-B	63.70
Group II-A	57.84
Group II-B	59.67
Group III	56.81
Group IV	51.57
Group IV-B	44.19
Group V	
Engineer All Tower, Climbing and	
Cranes of 100 Tons	77.82
Hoist Engineer(Steel)	70.41
Engineer(Pile Driver)	75.13
Jersey Spreader, Pavement Breaker (Air	
Ram)Post Hole Digger	59.19

Engineers operating cranes with booms 100 feet but less than 149 feet in length will be paid an additional \$2.00 per hour over the rate listed in the Wage Schedule. Engineers operating cranes with booms 149 feet or over in length will be paid an additional \$3.00 per hour over the rate listed in the Wage Schedule. Loader and Excavator Operators: over 5 cubic yards capacity \$0.50 per hour over the rate listed in the Wage Schedule. Shovel Operators: over 4 cubic yards capacity \$1.00 per hour over the rate listed in the Wage Schedule.

SHIFT WORK

A 15% premium on all hours paid, including overtime hours for 2nd, 3rd shifts on all government mandated off-shift work

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker: \$ 34.85 up
to 40 Hours

After 40 hours
\$ 25.55* PLUS

\$ 1.25 on all
hours worked

*This amount is subject to premium

OVERTIME PAY

See (B, E, P, *R, **U) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE

Overtime..... See (5, 6, 8, 15, 25, 26) on OVERTIME PAGE

* For Holiday codes 8,15,25,26 code R applies

** For Holiday Codes 5 & 6 code U applies

Note: If employees are required to work on Easter Sunday they shall be paid at the rate of triple time.

REGISTERED APPRENTICES

(1)year terms at the following rate.

1st term	\$ 30.21
2nd term	36.25
3rd term	42.30
4th term	48.34
Supplemental Benefits per hour:	

26.85

8-137HH

Operating Engineer - Heavy&Highway

08/01/2024

JOB DESCRIPTION Operating Engineer - Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Putnam, Westchester

PARTIAL COUNTIES

Dutchess: South of the North city line of Poughkeepsie

WAGES

Party Chief - One who directs a survey party

Instrument Man - One who runs the instrument and assists Party Chief

Rodman - One who holds the rod and in general, assists the Survey Crew

Categories cover GPS & Underground Surveying

Per Hour: 07/01/2024

Party Chief	\$ 84.94
Instrument Man	63.15
Rodman	53.43

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2024

All Categories
Straight Time: \$ 30.04* + \$7.64

Premium:
Time & 1/2 \$ 45.06* + \$7.64

Double Time \$ 60.08* + \$7.64

Non-Worked Holiday Supplemental Benefits:
\$ 21.83

OVERTIME PAY

See (B, *E, Q) on OVERTIME PAGE

* Doubletime paid on all hours in excess of 8 hours on Saturday

HOLIDAY

Paid: See (5, 6, 7, 11, 12) on HOLIDAY PAGE

Overtime: See (5, 6, 7, 11, 12) on HOLIDAY PAGE

9-15Dh

Operating Engineer - Heavy&Highway - Tunnel

08/01/2024

JOB DESCRIPTION Operating Engineer - Heavy&Highway - Tunnel

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

PARTIAL COUNTIES

Dutchess: All the counties of Westchester and Putnam and the southern part of Dutchess County defined by the northern boundary line of the City of Poughkeepsie, then due east to Route 115, then north along Route 115 to Bedell Road, then east along Bedell Road to Van Wagner Road, then north along Van Wagner Road to Bower Road, then east along Bower Road to Route 44 and along Route 44 east to Route 343, then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to the border line of the State of Connecticut and bordered on the west by the middle of the Hudson River.

WAGES

GROUP I: Boom Truck, Cherry Picker, Clamshell, Crane(Crawler, Truck), Dragline, Drill Rig Casa Grande(Cat or Similar), Floating Crane(Crane on Barge-Under 100 Tons), Hoist Engineer(Concrete/Crane-Derrick-Mine Hoist), Knuckle Boom Crane, Rough Terrain Crane.

GROUP I-A: Auger(Truck or Truck Mounted), Boat Captain, Bull Dozer-all sizes, Central Mix Plant Operator, Chipper-all types, Close Circuit T.V., Combination Loader/Backhoe, Compactor with Blade, Concrete Finishing Machine, Gradall, Grader(Motor Grader), Elevator & Cage(Materials or Passengers), Excavator(and all attachments), Front End Loaders(1 1/2 yards and over), High Lift Lull, Hoist(Single, Double, Triple Drum), Hoist Portable Mobile Unit, Hoist Engineer(Material), Jack and Bore Machine, Log Skidder, Milling Machine, Moveable Concrete Barrier Transfer & Transport Vehicle, Mucking Machines. Overhead Crane, Paver(Concrete), Post Pounder of any type, Push Cats, Road Reclaimer, Robot Hammer(Brokk or similar), Robotic Equipment(Scope of Engineer Schedule), Ross Carrier and similar machines, Scrapers(20 yards struck and over), Side Boom, Slip Form Machine, Spreader(Asphalt), Trenching Machines, Telephies-Vermeer Concrete Saw, Tractor type demolition equipment, Vacuum Truck, Vibratory Roller (Riding) used in mainline paving operations.

GROUP I-B: Asphalt Mobile Conveyor/Transfer Machine, Road Paver(Asphalt).

GROUP II-A: Ballast Regulators, Compactor(Self-propelled), Fusion Machine, Rail Anchor Machines, Roller(4 ton and over), Scrapers(20 yard struck and under).

GROUP II-B: Mechanic(outside)all types, Shop Mechanic.

GROUP III: Air Tractor Drill, Asphalt Plant, Batch Plant, Boiler(High Pressure), Concrete Breaker(Track or Rubber Tire), Concrete Pump, Concrete Spreader, Excavator Drill, Farm Tractor, Forklift(all types of power), Gas Tapping(Live), Hydroseeder, Loader(1 1/2 yards and under), Locomotive(all sizes), Machine Pulling Sheeps Foot Roller, Portable Asphalt Plant, Portable Batch Plant, Portable Crusher(Apprentice), Powerhouse Plant, Roller(under 4 ton), Sheer Excavator, Skidsteer/Bobcat, Stone Crusher, Sweeper(with seat), Well Drilling Machine.

GROUP IV-A: Service Person(Grease Truck), Deckhand.

GROUP IV-B: Conveyor Belt Machine(Truck Mounted), Heater(all types), Lighting Unit(Portable), Maintenance Engineer(for Crane only), Mechanics Helper, Pump(Fireproofing), Pumps-Pump Station/Water/Sewer/Gypsum/Plaster, etc., Pump Truck(Sewer Jet or similar), Welding Machine(Steel Erection), Welders Helper.

GROUP V-A: Engineer(all Tower Cranes, all Climbing Cranes & all Cranes of 100 ton capacity or greater),Hoist Engineer(Steel-Sub Structure), Engineer-Pile Driver, Jersey-Spreader, Pavement breaker, Post Hole Digger

WAGES: (per hour)

07/01/2024

GROUP I	\$ 68.63
GROUP I-A	60.42
GROUP I-B	63.70
GROUP II-A	57.84
GROUP II-B	59.67
GROUP III	56.81
GROUP IV-A	51.57
GROUP IV-B	44.19
GROUP V-A	
Engineer-Cranes	77.82
Engineer-Pile Driver	75.13
Hoist Engineer	70.41
Jersey Spreader/Post Hole Digger	59.19

An additional 20% to wage when required to wear protective equipment on hazardous/toxic waste projects. Operators required to use two buckets pouring concrete on other than road pavement shall receive \$0.50 per hour over scale. Engineers operating cranes with booms 100 feet but less than 149 feet in length will be paid an additional \$2.00 per hour. Engineers operating cranes with booms 149 feet or over in length will be paid an additional \$3.00 per hour. Operators of shovels with a capacity over (4) cubic yards shall be paid an additional \$1.00 per hour. Operators of loaders with a capacity over (5) cubic yards shall be paid an additional \$0.50 per hour.

SHIFT WORK

A 15% premium on all hours paid, including overtime hours for 2nd, 3rd shifts
on all government mandated off-shift work

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker:

\$ 34.85 up to
40 hours
After 40 hours
\$25.55 plus
\$1.25 on all
hours worked

OVERTIME PAY

See (D, O, *U, V) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE

* Note: For Holiday codes 5 & 6, code U applies. For Holiday codes 8, 15, 25, 26, code R applies.

Note: If employees are required to work on Easter Sunday, they shall be paid at the rate of triple time.

REGISTERED APPRENTICES

(1)year terms at the following rates:

1st term	\$ 30.21
2nd term	36.25
3rd term	42.30
4th term	48.34

Supplemental Benefits per hour:

All terms	\$ 26.85

8-137Tun

Operating Engineer - Marine Dredging

08/01/2024

JOB DESCRIPTION Operating Engineer - Marine Dredging

DISTRICT 4

ENTIRE COUNTIES

Albany, Bronx, Cayuga, Clinton, Columbia, Dutchess, Essex, Franklin, Greene, Jefferson, Kings, Monroe, Nassau, New York, Orange, Oswego, Putnam, Queens, Rensselaer, Richmond, Rockland, St. Lawrence, Suffolk, Ulster, Washington, Wayne, Westchester

WAGES

These wages do not apply to Operating Engineers on land based construction projects. For those projects, please see the Operating Engineer Heavy/Highway Rates. The wage rates below for all equipment and operators are only for marine dredging work in navigable waters found in the counties listed above.

Per Hour: 07/01/2024

CLASS A1	\$ 45.26

Deck Captain, Leverman,
Mechanical Dredge Operator,
Licensed Tug Operator 1000HP or more.

CLASS A2	40.33

Crane Operator (360 swing)

CLASS B	To conform to Operating Engineer Prevailing Wage in locality where work is being performed including benefits.

Dozer, Front Loader
Operator on Land

CLASS B1	39.14

Derrick Operator (180 swing)
Spider/Spill Barge Operator

Operator II, Fill Placer, Engineer
Chief Mate, Electrician, Chief Welder,
Maintenance Engineer, Licensed Boat, Crew Boat Operator

CLASS B2 36.84
Certified Welder

CLASS C1 35.83
Drag Barge Operator,
Steward, Mate,
Assistant Fill Placer

CLASS C2 34.68
Boat Operator

CLASS D 28.81
Shoreman, Deckhand, Oiler,
Rodman, Scowman, Cook,
Messman, Porter/Janitor

SUPPLEMENTAL BENEFITS

Per Hour:

THE FOLLOWING SUPPLEMENTAL BENEFITS APPLY TO ALL CATEGORIES

All Classes A & B \$ 12.00 plus 7%
of straight time
wage, Overtime hours
add \$ 0.63

All Class C & D \$ 11.75 plus 7%
of straight time
wage, Overtime hours
add \$ 0.50

OVERTIME PAY

See (B2, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 15, 26) on HOLIDAY PAGE

4-25a-MarDredge

Operating Engineer - Survey Crew - Consulting Engineer

08/01/2024

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES

Dutchess: That part in Dutchess County lying South of the North City line of Poughkeepsie.

WAGES

Feasibility and preliminary design surveying, any line and grade surveying for inspection or supervision of construction.

Per hour: 07/01/2024
Survey Classifications

Party Chief \$ 49.39
Instrument Man 40.96
Rodman 35.63

SUPPLEMENTAL BENEFITS

Per Hour:

All Crew Members: \$ 23.75

OVERTIME PAY

OVERTIME:.... See (B, E*, Q, V) ON OVERTIME PAGE.

*Double-time paid on the 9th hour on Saturday.

HOLIDAY

Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

Painter

08/01/2024

JOB DESCRIPTION Painter

DISTRICT 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

WAGES		
Per hour:	07/01/2024	05/01/2025 Additional
Brush	52.86*	\$ 2.62**
Abatement/Removal of lead based or lead containing paint on materials to be repainted.	52.86*	
Spray & Scaffold	\$ 55.86*	
Fire Escape	55.86*	
Decorator	55.86*	
Paperhanger/Wall Coverer	55.09*	

*Subtract \$ 0.10 to calculate premium rate.

** To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per hour:	
Paperhanger	\$ 36.73
All others	34.31
Premium	38.28**

**Applies only to "All others" category, not paperhanger journeyworker.

OVERTIME PAY
See (A, E, R) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
One (1) year terms at the following wage rate.

Per hour:	07/01/2024
Appr 1st term...	\$ 20.22*
Appr 2nd term...	25.93*
Appr 3rd term...	31.61*
Appr 4th term...	42.40*

*Subtract \$ 0.10 to calculate premium rate.

Supplemental benefits:	
Per Hour:	
Appr 1st term...	\$ 16.89
Appr 2nd term...	20.95
Appr 3rd term...	24.10
Appr 4th term...	30.57

8-NYDC9-B/S

Painter

08/01/2024

JOB DESCRIPTION Painter

DISTRICT 8

ENTIRE COUNTIES
Putnam, Suffolk, Westchester

PARTIAL COUNTIES

Nassau: All of Nassau except the areas described below: Atlantic Beach, Ceaderhurst, East Rockaway, Gibson, Hewlett, Hewlett Bay, Hewlett Neck, Hewlett Park, Inwood, Lawrence, Lido Beach, Long Beach, parts of Lynbrook, parts of Oceanside, parts of Valley Stream, and Woodmere. Starting on the South side of Sunrise Hwy in Valley Stream running east to Windsor and Rockaway Ave., Rockville Centre is the boundary line up to Lawson Blvd. turn right going west all the above territory. Starting at Union Turnpike and Lakeville Rd. going north to Northern Blvd. the west side of Lakeville road to Northern blvd. At Northern blvd. going east the district north of Northern blvd. to Port Washington Blvd. West of Port Washington blvd.to St.Francis Hospital then north of first traffic light to Port Washington and Sands Point, Manor HAVen, Harbour Acres.

WAGES		
Per hour:	07/01/2024	05/01/2025
Drywall Taper:	\$ 52.86*	Additional
Scaffold:	\$ 55.86*	\$ 2.62**

*Subtract \$ 0.10 to calculate premium rate.

** To be allocated a later date.

SUPPLEMENTAL BENEFITS

Per hour:	
Journeyman	\$ 34.31

OVERTIME PAY

See (A, E, R) on OVERTIME PAGE

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages - Per Hour:

1500 hour terms at the following wage rate:

1st term	\$ 20.22*
2nd term	25.93*
3rd term	31.61*
4th term	42.40*

*Subtract \$ 0.10 to calculate premium rate.

Supplemental Benefits - Per hour:
One year term (1500 hours) at the following dollar amount.

1st year	\$ 16.89
2nd year	20.95
3rd year	24.10
4th year	30.57

8-NYDCT9-DWT

Painter - Bridge & Structural Steel	08/01/2024

JOB DESCRIPTION Painter - Bridge & Structural Steel

DISTRICT 8

ENTIRE COUNTIES
Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES	
Per Hour:	
STEEL:	
Bridge Painting:	07/01/2024
	\$ 56.00
	+ 10.35*

ADDITIONAL \$7.00 per hour for POWER TOOL/SPRAY, whether straight time or overtime.

NOTE: All premium wages are to be calculated on base rate per hour only.

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (50 hour cap).

NOTE: Generally, for Bridge Painting Contracts, ALL WORKERS on and off the bridge (including Flagmen) are to be paid Painter's Rate; the contract must be ONLY for Bridge Painting.

SHIFT WORK

When directly specified in public agency or authority contract documents for an employer to work a second shift and works the second shift with employees other than from the first shift, all employees who work the second shift will be paid 10% of the base wage shift differential in lieu of overtime for the first eight (8) hours worked after which the employees shall be paid at time and one half of the regular wage rate. When a single irregular work shift is mandated in the job specifications or by the contracting agency, wages shall be paid at time and one half for single shifts between the hours of 3pm-11pm or 11pm-7am.

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker:

\$ 12.43
+ 31.55*

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (50 hour cap).

OVERTIME PAY

See (B, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (4, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage - Per hour:

Apprentices: (1) year terms.

1st year	\$ 22.40 + 4.14
2nd year	\$ 33.60 + 6.21
3rd year	\$ 44.80 + 8.28
Supplemental Benefits - Per hour:	
1st year	\$ 1.16 + 12.62
2nd year	\$ 7.46 + 18.93
3rd year	\$ 9.94 + 25.24

NOTE: All premium wages are to be calculated on base rate per hour only.

8-DC-9/806/155-BrSS

Painter - Line Striping	08/01/2024

JOB DESCRIPTION Painter - Line Striping

DISTRICT 8

ENTIRE COUNTIES

Albany, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Montgomery, Nassau, Orange, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES

Per hour:

Painter (Striping-Highway):	07/01/2024	04/01/2025	04/01/2026
Striping-Machine Operator*	\$ 34.12	\$ 35.49	\$ 36.93
Linerman Thermoplastic	41.12	42.74	44.44

Note: * Includes but is not limited to: Positioning of cones and directing of traffic using hand held devices. Excludes the Driver/Operator of equipment used in the maintenance and protection of traffic safety.

SHIFT WORK

When directly specified in public agency or authority contract documents there shall be a 30% night shift premium pay differential for all work performed after 9:00pm and before 5:00am.

SUPPLEMENTAL BENEFITS

Per hour paid:			
Journeyworker:			
Striping Machine Operator:	\$23.65	\$ 24.30	\$ 24.95
Linerman Thermoplastic:	23.65	24.30	24.95

OVERTIME PAY

See (B, B2, E2, F, S) on OVERTIME PAGE

HOLIDAY

Paid:	See (5, 20) on HOLIDAY PAGE
Overtime:	See (5, 20) on HOLIDAY PAGE

REGISTERED APPRENTICES

One (1) year terms at the following wage rates:

1st Term:	\$ 16.00	\$ 16.00	\$ 16.00
2nd Term:	20.47	21.29	22.16
3rd Term:	27.30	28.39	29.54
Supplemental Benefits per hour:			
All terms:	\$ 23.65	\$ 24.30	\$ 24.95

8-1456-LS

Painter - Metal Polisher

08/01/2024

JOB DESCRIPTION Painter - Metal Polisher

DISTRICT 8

ENTIRE COUNTIES
Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES	07/01/2024
Metal Polisher	\$ 39.33
Metal Polisher*	40.43
Metal Polisher**	43.33

*Note: Applies on New Construction & complete renovation
** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2024
Journeyworker:	
All classification	\$ 12.79

OVERTIME PAY

See (B, E, P, T) on OVERTIME PAGE

HOLIDAY

Paid:	See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE
Overtime:	See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:
One (1) year term at the following wage rates:

	07/01/2024
1st year	\$ 19.67
2nd year	21.63
3rd year	23.60
1st year*	\$ 22.06

2nd year*	22.07
3rd year*	24.14
1st year**	\$ 22.17
2nd year**	24.13
3rd year**	26.10

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

Supplemental benefits:

Per hour:

1st year	\$ 8.69
2nd year	8.69
3rd year	8.69

8-8A/28A-MP

Plumber**08/01/2024**

JOB DESCRIPTION Plumber**DISTRICT** 8**ENTIRE COUNTIES**

Putnam, Westchester

WAGES

Per hour:

07/01/2024

Plumber and

Steamfitter

\$ 63.76

SHIFT WORK

SHIFT WORK:

When directly specified in public agency or authority contract documents, shift work outside the regular hours of work shall be comprised of eight (8) hours per shift not including Saturday, Sundays and holidays. One half (1/2) hour shall be allowed for lunch after the first four (4) hours of each shift. Wage and Fringes for shift work shall be straight time plus a shift premium of twenty-five (25%) percent. A minimum of five days Monday through Friday must be worked to establish shift work.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$ 43.61

OVERTIME PAY

See (B, E, E2, Q, V) on OVERTIME PAGE

OVERTIME:... See on OVERTIME PAGE.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1)year terms at the following wages:

1st Term	\$ 23.75
2nd Term	27.23
3rd Term	31.47
4th Term	44.80
5th Term	48.05

Supplemental Benefits per hour:

1st term	\$ 17.94
2nd term	20.05
3rd term	23.82
4th term	31.51
5th term	33.42

8-21.1-ST

Plumber - HVAC / Service**08/01/2024**

JOB DESCRIPTION Plumber - HVAC / Service**DISTRICT** 8

ENTIRE COUNTIES

Dutchess, Putnam, Westchester

PARTIAL COUNTIES

Delaware: Only the townships of Middletown and Roxbury

Ulster: Entire County(including Wallkill and Shawangunk Prisons) except for remainder of Town of Shawangunk and Towns of Plattekill, Marlboro, and Wawarsing.

WAGES

Per hour: 07/01/2024

HVAC Service \$ 43.43
+ \$ 4.47*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker HVAC Service
\$ 30.39

OVERTIME PAY

See (B, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 16, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

HVAC SERVICE

(1)year terms at the following wages:

1st yr.	2nd yr.	3rd yr.	4th yr.	5th yr.
\$ 19.66	\$ 23.32	\$ 29.05	\$ 35.73	\$ 38.83
+\$2.43*	+\$2.76*	+\$3.31*	+\$3.96*	+\$4.21*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental Benefits per hour:

Apprentices 07/01/2024

1st term	\$ 21.47
2nd term	23.05
3rd term	24.76
4th term	27.13
5th term	28.81

8-21.1&2-SF/Re/AC

Plumber - Jobbing & Alterations

08/01/2024

JOB DESCRIPTION Plumber - Jobbing & Alterations

DISTRICT 8

ENTIRE COUNTIES

Dutchess, Putnam, Westchester

PARTIAL COUNTIES

Ulster: Entire county (including Wallkill and Shawangunk Prisons in Town of Shawangunk) EXCEPT for remainder of Town of Shawangunk, and Towns of Plattekill, Marlboro, and Wawarsing.

WAGES

Per hour: 07/01/2024

Journeyworker: \$ 49.63

Repairs, replacements and alteration work is any repair or replacement of a present plumbing system that does not change existing roughing or water supply lines.

SHIFT WORK

When directly specified in public agency or authority contract documents, shift work outside the regular hours of work shall be comprised of eight (8) hours per shift not including Saturday, Sundays and holidays. One half (1/2) hour shall be allowed for lunch after the first four (4) hours of each shift. Wage and Fringes for shift work shall be straight time plus a shift premium of twenty-five (25%) percent. A minimum of five days Monday through Friday must be worked to establish shift work.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker

\$ 36.44

OVERTIME PAY

See (B, *E, E2, Q, V) on OVERTIME PAGE

*When used as a make-up day, hours after 8 on Saturday shall be paid at time and one half.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wages:

1st year	\$ 21.35
2nd year	23.73
3rd year	25.87
4th year	36.28
5th year	38.34

Supplemental Benefits per hour:

1st year	\$ 12.11
2nd year	14.21
3rd year	18.38
4th year	24.86
5th year	26.96

8-21.3-J&A

Roofer

08/01/2024

JOB DESCRIPTION Roofer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Dutchess, Kings, New York, Orange, Putnam, Queens, Richmond, Rockland, Sullivan, Ulster, Westchester

WAGES

Per Hour: 07/01/2024

Roofer/Waterproofer \$ 48.50
+ \$7.00*

* This portion is not subjected to overtime premiums.

Note: Abatement/Removal of Asbestos containing roofs and roofing material is classified as Roofer.

SUPPLEMENTAL BENEFITS

Per Hour: \$ 31.87

OVERTIME PAY

See (B, H) on OVERTIME PAGE

Note: An observed holiday that falls on a Sunday will be observed the following Monday.

HOLIDAY

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year term apprentices indentured prior to 01/01/2023

1st	2nd	3rd	4th
\$ 16.97	\$ 24.25	\$ 29.10	\$ 36.37
	+ 3.50*	+ 4.20*	+ 5.26*

Supplements:

1st	2nd	3rd	4th
\$ 4.10	\$ 16.17	\$ 19.31	\$ 24.02

* This portion is not subjected to overtime premiums.

(1) year term apprentices indentured after 01/01/2023

1st	2nd	3rd	4th	5th
\$ 18.43	\$ 21.82	\$ 24.25	\$ 29.10	\$ 36.37
	+ 3.16*	+ 3.50*	+ 4.20*	+ 5.26

Supplements:

1st	2nd	3rd	4th	5th
\$ 7.73	\$ 14.59	\$ 16.17	\$ 19.31	\$ 24.02

* This portion is not subjected to overtime premiums.

9-8R

Sheetmetal Worker	08/01/2024

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 8

ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

WAGES

	07/01/2024
SheetMetal Worker	\$ 49.51
	+ 3.71*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SHIFT WORK

For all NYS D.O.T. and other Governmental mandated off-shift work:

10% increase for additional shifts for a minimum of five (5) days

SUPPLEMENTAL BENEFITS

Journeyworker \$ 46.20

OVERTIME PAY

OVERTIME:.. See (B, E, Q,) on OVERTIME PAGE.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 15, 16, 23) on HOLIDAY PAGE

REGISTERED APPRENTICES

1st	2nd	3rd	4th	5th	6th	7th	8th
\$ 20.20	\$ 20.81	\$ 23.12	\$ 25.42	\$ 27.74	\$ 30.08	\$ 32.86	\$ 35.63
+ 1.48*	+ 1.67*	+ 1.86*	+ 2.04*	+ 2.23*	+ 2.41*	+ 2.60*	+ 2.78*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental Benefits per hour:

Apprentices

1st term	\$ 18.07
2nd term	22.24
3rd term	24.71
4th term	27.21
5th term	29.67
6th term	32.12
7th term	34.12
8th term	36.15

8-38

Sheetmetal Worker	08/01/2024

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per Hour:

Sign Erector \$ 58.00

NOTE: Structurally Supported Overhead Highway Signs(See STRUCTURAL IRON WORKER CLASS)

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2024

Sign Erector \$ 57.12

OVERTIME PAY

See (A, F, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Per Hour:

6 month Terms at the following percentage of Sign Erectors wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
35%	40%	45%	50%	55%	60%	65%	70%	75%	80%

SUPPLEMENTAL BENEFITS

Per Hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 16.05	\$ 18.21	\$ 20.37	\$ 22.53	\$ 31.17	\$ 33.91	\$ 37.53	\$ 40.34	\$ 43.17	\$ 45.97
4-137-SE									

Sprinkler Fitter

08/01/2024

JOB DESCRIPTION Sprinkler Fitter

DISTRICT 1

ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

WAGES

Per hour 07/01/2024

Sprinkler \$ 53.34
Fitter

SUPPLEMENTAL BENEFITS

Per hour

Journeyworker \$ 30.77

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

Note: When a holiday falls on Sunday, the following Monday shall be considered a holiday and all work performed on either day shall be at the double time rate. When a holiday falls on Saturday, the preceding Friday shall be considered a holiday and all work performed on either day shall be at the double time rate.

REGISTERED APPRENTICES

Wages per hour

One Half Year terms at the following wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 25.89	\$ 28.77	\$ 31.39	\$ 34.27	\$ 37.14	\$ 40.02	\$ 42.90	\$ 45.77	\$ 48.65	\$ 51.53

Supplemental Benefits per hour

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 9.18	\$ 9.18	\$ 20.90	\$ 20.90	\$ 21.15	\$ 21.15	\$ 21.15	\$ 21.15	\$ 21.15	\$ 21.15
1-669.2									

Teamster - Building / Heavy&Highway

08/01/2024

JOB DESCRIPTION Teamster - Building / Heavy&Highway

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

WAGES

GROUP A: Straight Trucks (6-wheeler and 10-wheeler), A-frame, Winch, Dynamite Seeding, Mulching, Agitator, Water, Attenuator, Light Towers, Cement (all types), Suburban, Station Wagons, Cars, Pick Ups, any vehicle carrying materials of any kind.

GROUP AA: Tack Coat

GROUP B: Tractor & Trailers (all types).

GROUP BB: Tri-Axle,14 Wheeler

GROUP C: Low Boy (carrying equipment).

GROUP D: Fuel Trucks, Tire Trucks.

GROUP E: Off-road Equipment (over 40 tons): Athey Wagons, Belly Dumps, Articulated Dumps, Trailer Wagons.

GROUP F: Off-road Equipment (over 40 tons) Euclid, DJB.

GROUP G: Off-road Equipment (under 40 tons) Athey Wagons, Belly Articulated Dumps, Trailer Wagons.

GROUP H: Off-road Equipment(under 40 tons), Euclid.

GROUP HH: Off-road Equipment(under 40 tons) D.J.B.

GROUP I: Off-road Equipment(under 40 tons) Darts.

GROUP II: Off-road Equipment(under 40 tons) RXS.

WAGES:(per hour)

07/01/2024

GROUP A	\$ 47.86*
GROUP AA	50.86*
GROUP B	48.48*
GROUP BB	47.98*
GROUP C	50.61*
GROUP D	48.31*
GROUP E	48.86*
GROUP F	49.86*
GROUP G	48.61*
GROUP H	49.23*
GROUP HH	49.61*
GROUP I	49.36*
GROUP II	49.73*

* To calculate premium wage, subtract \$.10 from the hourly wage.

Note: Fuel truck operators on construction sites addit. \$5.00 per day.

For work on hazardous/toxic waste site addit. 20% of hourly rate.

SHIFT WORK

When mandated by the contracting agency, DOT, or any governmental agency contracts shall receive a shift differential of fifteen (15%) above the wage rate.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker

First 40 hours	\$ 37.33
41st-45th hours	16.73
Over 45 hours	1.60

OVERTIME PAY

See (B, E, P, R) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 8, 15, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 15, 25) on HOLIDAY PAGE

8-456

Welder

08/01/2024

JOB DESCRIPTION Welder

DISTRICT 1

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuylar, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per hour 07/01/2024

Welder: To be paid the same rate of the mechanic performing the work.*

*EXCEPTION: If a specific welder certification is required, then the 'Certified Welder' rate in that trade tag will be paid.

OVERTIME PAY

HOLIDAY

1-As Per Trade

Overtime Codes

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule. Additional requirements may also be listed in the HOLIDAY section.

NOTE: Supplemental Benefits are 'Per hour worked' (for each hour worked) unless otherwise noted

- (AA) Time and one half of the hourly rate after 7 and one half hours per day
- (A) Time and one half of the hourly rate after 7 hours per day
- (B) Time and one half of the hourly rate after 8 hours per day
- (B1) Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday.
Double the hourly rate for all additional hours
- (B2) Time and one half of the hourly rate after 40 hours per week
- (C) Double the hourly rate after 7 hours per day
- (C1) Double the hourly rate after 7 and one half hours per day
- (D) Double the hourly rate after 8 hours per day
- (D1) Double the hourly rate after 9 hours per day
- (E) Time and one half of the hourly rate on Saturday
- (E1) Time and one half 1st 4 hours on Saturday; Double the hourly rate all additional Saturday hours
- (E2) Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E3) Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week
- (E4) Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E5) Double time after 8 hours on Saturdays
- (F) Time and one half of the hourly rate on Saturday and Sunday
- (G) Time and one half of the hourly rate on Saturday and Holidays
- (H) Time and one half of the hourly rate on Saturday, Sunday, and Holidays
- (I) Time and one half of the hourly rate on Sunday
- (J) Time and one half of the hourly rate on Sunday and Holidays
- (K) Time and one half of the hourly rate on Holidays
- (L) Double the hourly rate on Saturday
- (M) Double the hourly rate on Saturday and Sunday
- (N) Double the hourly rate on Saturday and Holidays
- (O) Double the hourly rate on Saturday, Sunday, and Holidays
- (P) Double the hourly rate on Sunday
- (Q) Double the hourly rate on Sunday and Holidays
- (R) Double the hourly rate on Holidays
- (S) Two and one half times the hourly rate for Holidays

- (S1) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.
- (T) Triple the hourly rate for Holidays
- (U) Four times the hourly rate for Holidays
- (V) Including benefits at SAME PREMIUM as shown for overtime
- (W) Time and one half for benefits on all overtime hours.
- (X) Benefits payable on Paid Holiday at straight time. If worked, additional benefit amount will be required for worked hours. (Refer to other codes listed.)

Holiday Codes

PAID Holidays:

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

OVERTIME Holiday Pay:

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

(1)	None
(2)	Labor Day
(3)	Memorial Day and Labor Day
(4)	Memorial Day and July 4th
(5)	Memorial Day, July 4th, and Labor Day
(6)	New Year's, Thanksgiving, and Christmas
(7)	Lincoln's Birthday, Washington's Birthday, and Veterans Day
(8)	Good Friday
(9)	Lincoln's Birthday
(10)	Washington's Birthday
(11)	Columbus Day
(12)	Election Day
(13)	Presidential Election Day
(14)	1/2 Day on Presidential Election Day
(15)	Veterans Day
(16)	Day after Thanksgiving
(17)	July 4th
(18)	1/2 Day before Christmas
(19)	1/2 Day before New Years
(20)	Thanksgiving
(21)	New Year's Day
(22)	Christmas
(23)	Day before Christmas
(24)	Day before New Year's
(25)	Presidents' Day
(26)	Martin Luther King, Jr. Day
(27)	Memorial Day
(28)	Easter Sunday

(29) Juneteenth

New York State Department of Labor - Bureau of Public Work
State Office Building Campus
Building 12 - Room 130
Albany, New York 12226

REQUEST FOR WAGE AND SUPPLEMENT INFORMATION

As Required by Articles 8 and 9 of the NYS Labor Law

Fax (518) 485-1870 or mail this form for new schedules or for determination for additional occupations.

This Form Must Be Typed

Submitted By:

(Check Only One) ☐ Contracting Agency ☐ Architect or Engineering Firm ☐ Public Work District Office Date:

A. Public Work Contract to be let by: (Enter Data Pertaining to Contracting/Public Agency)

1. Name and complete address ☐ (Check if new or change) Telephone _____ Fax _____ E-Mail: _____	2. NY State Units (see Item 5). <table style="width: 100%;"><tr><td>☐ 01 DOT</td><td>☐ 07 City</td></tr><tr><td>☐ 02 OGS</td><td>☐ 08 Local School District</td></tr><tr><td>☐ 03 Dormitory Authority</td><td>☐ 09 Special Local District, i.e., Fire, Sewer, Water District</td></tr><tr><td>☐ 04 State University Construction Fund</td><td>☐ 10 Village</td></tr><tr><td>☐ 05 Mental Hygiene Facilities Corp.</td><td>☐ 11 Town</td></tr><tr><td>☐ 06 OTHER N.Y. STATE UNIT</td><td>☐ 12 County</td></tr><tr><td></td><td>☐ 13 Other Non-N.Y. State (Describe)</td></tr></table>	☐ 01 DOT	☐ 07 City	☐ 02 OGS	☐ 08 Local School District	☐ 03 Dormitory Authority	☐ 09 Special Local District, i.e., Fire, Sewer, Water District	☐ 04 State University Construction Fund	☐ 10 Village	☐ 05 Mental Hygiene Facilities Corp.	☐ 11 Town	☐ 06 OTHER N.Y. STATE UNIT	☐ 12 County		☐ 13 Other Non-N.Y. State (Describe)
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☐ 06 OTHER N.Y. STATE UNIT	☐ 12 County														
	☐ 13 Other Non-N.Y. State (Describe)														
3. SEND REPLY TO ☐ (check if new or change) Name and complete address: Telephone _____ Fax _____ E-Mail: _____	4. SERVICE REQUIRED. Check appropriate box and provide project information. ☐ New Schedule of Wages and Supplements. APPROXIMATE BID DATE : _____ ☐ Additional Occupation and/or Redetermination <table style="width: 100%;"><tr><td style="border: 1px solid black; padding: 5px; width: 50%;">PRC NUMBER ISSUED PREVIOUSLY FOR THIS PROJECT :</td><td style="border: 1px solid black; padding: 5px; width: 50%;">OFFICE USE ONLY</td></tr></table>	PRC NUMBER ISSUED PREVIOUSLY FOR THIS PROJECT :	OFFICE USE ONLY												
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B. PROJECT PARTICULARS

5. <u>Project Title</u> _____ <u>Description of Work</u> _____ _____ <u>Contract Identification Number</u> _____ <u>Note: For NYS units, the OSC Contract No.</u> _____	6. Location of Project: <u>Location on Site</u> _____ <u>Route No/Street Address</u> _____ <u>Village or City</u> _____ <u>Town</u> _____ <u>County</u> _____																						
7. Nature of Project - Check One: <table style="width: 100%;"><tr><td>☐ 1. New Building</td></tr><tr><td>☐ 2. Addition to Existing Structure</td></tr><tr><td>☐ 3. Heavy and Highway Construction (New and Repair)</td></tr><tr><td>☐ 4. New Sewer or Waterline</td></tr><tr><td>☐ 5. Other New Construction (Explain)</td></tr><tr><td>☐ 6. Other Reconstruction, Maintenance, Repair or Alteration</td></tr><tr><td>☐ 7. Demolition</td></tr><tr><td>☐ 8. Building Service Contract</td></tr></table>	☐ 1. New Building	☐ 2. Addition to Existing Structure	☐ 3. Heavy and Highway Construction (New and Repair)	☐ 4. New Sewer or Waterline	☐ 5. Other New Construction (Explain)	☐ 6. Other Reconstruction, Maintenance, Repair or Alteration	☐ 7. Demolition	☐ 8. Building Service Contract	8. OCCUPATION FOR PROJECT : <table style="width: 100%;"><tr><td>☐ Construction (Building, Heavy Highway/Sewer/Water)</td><td>☐ Fuel Delivery</td></tr><tr><td>☐ Tunnel</td><td>☐ Guards, Watchmen</td></tr><tr><td>☐ Residential</td><td>☐ Janitors, Porters, Cleaners, Elevator Operators</td></tr><tr><td>☐ Landscape Maintenance</td><td>☐ Moving furniture and equipment</td></tr><tr><td>☐ Elevator maintenance</td><td>☐ Trash and refuse removal</td></tr><tr><td>☐ Exterminators, Fumigators</td><td>☐ Window cleaners</td></tr><tr><td>☐ Fire Safety Director, NYC Only</td><td>☐ Other (Describe)</td></tr></table>	☐ Construction (Building, Heavy Highway/Sewer/Water)	☐ Fuel Delivery	☐ Tunnel	☐ Guards, Watchmen	☐ Residential	☐ Janitors, Porters, Cleaners, Elevator Operators	☐ Landscape Maintenance	☐ Moving furniture and equipment	☐ Elevator maintenance	☐ Trash and refuse removal	☐ Exterminators, Fumigators	☐ Window cleaners	☐ Fire Safety Director, NYC Only	☐ Other (Describe)
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9. Does this project comply with the Wicks Law involving separate bidding? YES ☐ NO ☐

10. Name and Title of Requester

Signature



NEW YORK STATE DEPARTMENT OF LABOR
Bureau of Public Work - Debarment List

**LIST OF EMPLOYERS INELIGIBLE TO BID ON OR BE
AWARDED ANY PUBLIC WORK CONTRACT**

Under Article 8 and Article 9 of the NYS Labor Law, a contractor, sub-contractor and/or its successor shall be debarred and ineligible to submit a bid on or be awarded any public work or public building service contract/sub-contract with the state, any municipal corporation or public body for a period of five (5) years from the date of debarment when:

- Two (2) final determinations have been rendered within any consecutive six-year (6) period determining that such contractor, sub-contractor and/or its successor has WILLFULLY failed to pay the prevailing wage and/or supplements;
- One (1) final determination involves falsification of payroll records or the kickback of wages and/or supplements.

The agency issuing the determination and providing the information, is denoted under the heading 'Fiscal Officer'. DOL = New York State Department of Labor; NYC = New York City Comptroller's Office; AG = New York State Attorney General's Office; DA = County District Attorney's Office.

Debarment Database: To search for contractors, sub-contractors and/or their successors debarred from bidding or being awarded any public work contract or subcontract under NYS Labor Law Articles 8 and 9, or under NYS Workers' Compensation Law Section 141-b, access the database at this link: <https://apps.labor.ny.gov/EDList/searchPage.do>

For inquiries please call 518-457-5589.

NYSDOL Bureau of Public Work Debarment List 08/16/2024

Article 8

AGENCY	Fiscal Officer	FEIN	EMPLOYER NAME	EMPLOYER DBA NAME	ADDRESS	DEBARMENT START DATE	DEBARMENT END DATE
DOL	DOL	*****5754	0369 CONTRACTORS, LLC		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL	*****5784	A.J.M. TRUCKING, INC.		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	AG	*****1812	ADVANCED BUILDERS & LAND DEVELOPMENT, INC.		400 OSER AVE #2300HAUPPAUGE NY 11788	09/11/2019	09/11/2024
DOL	NYC		ALL COUNTY SEWER & DRAIN, INC.		7 GREENFIELD DR WARWICK NY 10990	03/25/2022	03/25/2027
DOL	DOL	*****8387	AMERICAN PAVING & MASONRY, CORP.		8 FOREST AVE GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	DOL	*****8654	AMERICAN PAVING, INC.		8 FORREST AVE. GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	NYC		AMJED PARVEZ		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		ANGELO GARCIA		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL		ANGELO STANCO		8 FOREST AVE. GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	DOL		ANGELO TONDO		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	*****4231	ANKER'S ELECTRIC SERVICE, INC.		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL		ANTHONY MONGELLI		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	NYC		ARADCO CONSTRUCTION CORP		115-46 132RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	DOL		ARNOLD A. PAOLINI		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC		ARSHAD MEHMOOD		168-42 88TH AVENUE JAMAICA NY 11432	11/20/2019	11/20/2024
DOL	NYC		AVM CONSTRUCTION CORP		117-72 123RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	NYC		AZIDABEGUM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****8421	B & B DRYWALL, INC		206 WARREN AVE APT 1WHITE PLAINS NY 10603	12/14/2021	12/14/2026
DOL	DOL		B&L RENOVATION CO.		618 OCEAN PARKWAY APT A6BROOKLYN NY 11230	09/17/2020	09/17/2025
DOL	DOL		BERNARD BEGLEY		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
DOL	NYC	*****2113	BHW CONTRACTING, INC.		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL	*****3627	BJB CONSTRUCTION CORP.		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
DOL	DOL	*****5078	BLACK RIVER TREE REMOVAL, LLC		29807 ANDREWS ROAD BLACK RIVER NY 13032	10/17/2023	10/17/2028
DOL	DOL		BRADLEY J SCHUKA		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	DOL	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL	*****4083	C.P.D. ENTERPRISES, INC		P.O BOX 281 WALDEN NY 12586	03/03/2020	03/03/2025
DOL	DOL	*****5161	CALADRI DEVELOPMENT CORP.		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	*****3391	CALI ENTERPRISES, INC.		1223 PARK STREET PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	NYC		CALVIN WALTERS		465 EAST THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL	*****4155	CASA BUILDERS, INC.	FRIEDLANDER CONSTRUCTI ON	64 N PUTT CONNERS ROAD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	AG	*****7247	CENTURY CONCRETE CORP		2375 RAYNOR ST RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0026	CHANTICLEER CONSTRUCTION LLC		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	NYC	*****2117	CHARAN ELECTRICAL ENTERPRISES		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028

NYSDOL Bureau of Public Work Debarment List 08/16/2024

Article 8

DOL	NYC		CHARLES ZAHRADKA		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025
DOL	DOL		CHRISTOPHER GRECO		26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL		CRAIG JOHANSEN		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL	****3228	CROSS-COUNTY LANDSCAPING AND TREE SERVICE, INC.	ROCKLAND TREE SERVICE	26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL	****7619	DANCO CONSTRUCTION UNLIMITED INC.		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL		DANIEL ROBERT MCNALLY		7 GREENFIELD DRIVE WARWICK NY 10990	03/25/2022	03/25/2027
DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		DAVID FRIEDLANDER		64 NORTH PUTT CORNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	NYC		DAVID WEINER		14 NEW DROP LANE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024
DOL	DOL		DINA TAYLOR		64 N PUTT CONNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	DOL	****5175	EAGLE MECHANICAL AND GENERAL CONSTRUCTION LLC		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	AG		EDWIN HUTZLER		23 NORTH HOWELLS RD BELLPORT NY 11713	08/04/2021	08/04/2026
DOL	DA		EDWIN HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	****0780	EMES HEATING & PLUMBING CONTR		5 EMES LANE MONSEY NY 10952	01/20/2002	01/20/3002
DOL	DOL		EMIL KISZKO		84 DIAMOND ST BROOKLYN NY 11222	07/18/2024	07/18/2029
DOL	DOL	****3298	EMJACK CONSTRUCTION CORP.		84 DIAMOND ST BROOKLYN NY 11222	07/18/2024	07/18/2029
DOL	DOL	****3298	EMJACK CONSTRUCTION LLC		4192 SIR ANDREW CIRCLE DOYLESTOWN PA 18902	07/18/2024	07/18/2029
DOL	DOL		EUGENIUSZ "GINO" KUCHAR		195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	DA		FREDERICK HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	NYC	****6616	G & G MECHANICAL ENTERPRISES, LLC.		1936 HEMPSTEAD TURNPIKE EAST MEDOW NY 11554	11/29/2019	11/29/2024
DOL	DOL	****2998	G.E.M. AMERICAN CONSTRUCTION CORP.		195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	NYC		GAYATRI MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DA		GEORGE LUCEY		150 KINGS STREET BROOKLYN NY 11231	01/19/1998	01/19/2998
DOL	DA		GIOVANNA TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DA	****0213	GORILLA CONTRACTING GROUP, LLC		505 MANHATTAN AVE WEST BABYLON NY 11704	10/05/2023	10/05/2028
DOL	DOL		HANS RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL		HERBERT CLEMEN		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	DOL		HERBERT CLEMEN		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL	****9211	J. WASE CONSTRUCTION CORP.		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		J.M.J CONSTRUCTION		151 OSTRANDER AVENUE SYRACUSE NY 13205	11/21/2022	11/21/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027

NYSDOL Bureau of Public Work Debarment List 08/16/2024

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DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	12/12/2022	12/12/2027
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JAMES J. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****7993	JBS DIRT, INC.		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL	*****2435	JEFFEL D. JOHNSON	JMJ7 AND SON	5553 CAIRNSTRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JEFFEL JOHNSON ELITE CARPENTER REMODEL AND CONSTRUCTION		C2 EVERGREEN CIRCLE LIVERPOOL NY 13090	11/21/2022	11/21/2027
DOL	DOL	*****2435	JEFFREY M. JOHNSON	JMJ7 AND SON	5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	NYC		JENNIFER GUERRERO		1936 HEMPSTEAD TURNPIKE EAST MEADOW NY 11554	11/29/2019	11/29/2024
DOL	DOL		JIM PLAUGHER		17613 SANTE FE LINE ROAD WAYNEFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL		JMJ7 & SON CONSTRUCTION, LLC		5553 CAIRNS TRAIL LIVERPOOL NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 AND SONS CONTRACTORS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS		7014 13TH AVENUE BROOKLYN NY 11228	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS AND SONS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS, LLC		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JOHN GOCEK		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL		JOHN MARKOVIC		47 MANDON TERRACE HAWTHORN NJ 07506	03/29/2021	03/29/2026
DOL	DOL		JOHN WASE		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		JORGE RAMOS		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	DOL		JOSEPH K. SALERNO		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL		JOSEPH K. SALERNO II		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		JRN CONSTRUCTION CO, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028

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DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		JULIUS AND GITA BEHREND		5 EMES LANE MONSEY NY 10952	11/20/2002	11/20/3002
DOL	DOL		KARIN MANGIN		796 PHELPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	DOL		KATE E. CONNOR		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KEAN INDUSTRIES, LLC		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL	*****2959	KELC DEVELOPMENT, INC		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KIMBERLY F. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL		KMA GROUP II, INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL	*****1833	KMA GROUP INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL		KMA INSULATION, INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL		KRIN HEINEMANN		2345 ROUTE 52, SUITE 2N HOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	NYC		KULWANT S. DEOL		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028
DOL	DA	*****8816	LAKE CONSTRUCTION AND DEVELOPMENT CORPORATION		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	AG	*****3291	LINTECH ELECTRIC, INC.		3006 TILDEN AVE BROOKLYN NY 11226	02/16/2022	02/16/2027
DOL	DOL		LOUIS A. CALICCHIA		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	NYC		LUBOMIR PETER SVOBODA		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	NYC		M & L STEEL & ORNAMENTAL IRON CORP.		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	DOL	*****2196	MAINSTREAM SPECIALTIES, INC.		11 OLD TOWN RD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DA		MANUEL P TOBIO		150 KINGS STREET BROOKLYN NY 14444	08/19/1998	08/19/2998
DOL	DA		MANUEL TOBIO		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		MAQSOOD AHMAD		618 OCEAN PKWY BROOKLYN NY 11230	09/17/2020	09/17/2025
DOL	NYC		MARIA NUBILE		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	NYC	*****9926	MILLENNIUM FIRE PROTECTION, LLC		325 W. 38TH STREET SUITE 204NEW YORK NY 10018	11/14/2019	11/14/2024
DOL	NYC	*****0627	MILLENNIUM FIRE SERVICES, LLC		14 NEW DROP LNE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	NYC		MUHAMMED A. HASHEM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	NYC		NAMOW, INC.		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	DOL	*****7790	NATIONAL BUILDING & RESTORATION CORP		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	*****1797	NATIONAL CONSTRUCTION SERVICES, INC		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028

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DOL	NYC		NAVIT SINGH		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		NELCO CONTRACTING, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028
DOL	DA		NICHOLAS T. ANALITIS		505 MANHATTAN AVE WEST BABYLON NY 11704	10/05/2023	10/05/2028
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	****7429	NICOLAE I. BARBIR	BESTUCCO CONSTRUCTI ON, INC.	444 SCHANTZ ROAD ALLENTOWN PA 18104	09/17/2020	09/17/2025
DOL	NYC	****5643	NYC LINE CONTRACTORS, INC.		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		PATRICK PENNACCHIO		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL		PATRICK PENNACCHIO		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL		PAULINE CHAHALES		935 S LAKE BLVD MAHOPAC NY 10541	03/02/2021	03/02/2026
DOL	DOL		PETER STEVENS		11 OLD TOWN ROAD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DOL		PETER STEVENS		8269 21ST ST BELLEROSSE NY 11426	12/22/2022	12/22/2027
DOL	DOL	****4168	PHANTOM CONSTRUCTION CORP.		95-27 116TH STREET QUEENS NY 11419	07/12/2024	07/12/2029
DOL	DOL	****4168	PHANTOM CONSTRUCTION CORP.		95-27 116TH STREET QUEENS NY 11419	05/28/2024	05/28/2029
DOL	DOL	****0466	PRECISION BUILT FENCES, INC.		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	NYC		RASHEL CONSTRUCTION CORP		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	****1068	RATH MECHANICAL CONTRACTORS, INC.		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL	****2633	RAW POWER ELECTRIC CORP.		3 PARK CIRCLE MIDDLETOWN NY 10940	07/11/2022	07/11/2027
DOL	DA	****7559	REGAL CONTRACTING INC.		24 WOODBINE AVE NORTHPORT NY 11768	10/01/2020	10/01/2025
DOL	DOL		RICHARD REGGIO		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	DOL		ROBBYE BISSEAR		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	01/11/2003	01/11/3003
DOL	DOL		ROMEO WARREN		161 ROBYN RD MONROE NY 10950	07/11/2022	07/11/2027
DOL	DOL		RONALD MESSEN		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL	****7172	RZ & AL INC.		198 RIDGE AVENUE VALLEY STREAM NY 11581	06/06/2022	06/06/2027
DOL	DOL		SAL FRESINA MASONRY CONTRACTORS, INC.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL		SAL MASONRY CONTRACTORS, INC.		(SEE COMMENTS) SYRACUSE NY 13202	07/16/2021	07/16/2026
DOL	DOL	****9874	SALFREE ENTERPRISES INC		P.O BOX 14 2821 GARDNER RD POMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		SALVATORE A FRESINA A/K/A SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	DOL		SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	NYC	****0349	SAM WATERPROOFING INC		168-42 88TH AVENUE APT.1 AJAMAICA NY 11432	11/20/2019	11/20/2024
DOL	DA	****0476	SAMCO ELECTRIC CORP.		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	NYC	****1130	SCANA CONSTRUCTION CORP.		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025

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DOL	DOL	****2045	SCOTT DUFFIE	DUFFIE'S ELECTRIC, INC.	P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	DOL		SCOTT DUFFIE		P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	DA		SILVANO TRAVAJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DOL	****0440	SOLAR GUYS INC.		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	NYC		SOMATIE RAMSUNAHAI		115-46 132ND ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	DOL	****2221	SOUTH BUFFALO ELECTRIC, INC.		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC	****3661	SPANIER BUILDING MAINTENANCE CORP		200 OAK DRIVE SYOSSET NY 11791	03/14/2022	03/14/2027
DOL	DOL		STANADOS KALOGELAS		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL	****3496	STAR INTERNATIONAL INC		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	08/11/2003	08/11/3003
DOL	DOL	****6844	STEAM PLANT AND CHX SYSTEMS INC.		14B COMMERCIAL AVENUE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL	****9528	STEEL-IT, LLC.		17613 SANTE FE LINE ROAD WAYNESFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL	****3800	SUBURBAN RESTORATION CO. INC.		5-10 BANTA PLACE FAIR LAWN PLACE NJ 07410	03/29/2021	03/29/2026
DOL	DOL	****9150	SURGE INC.		8269 21ST STREET BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL		SYED RAZA		198 RIDGE AVENUE NY 11581	06/06/2022	06/06/2027
DOL	DOL		TARLOK SINGH		95-27 116TH STREET QUEENS NY 11419	05/28/2024	05/28/2029
DOL	DOL		TARLOK SINGH		95-27 116TH STREET QUEENS NY 11419	07/12/2024	07/12/2029
DOL	DOL		TERRY THOMPSON		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	DOL	****9733	TERSAL CONSTRUCTION SERVICES INC		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13208	07/16/2021	07/16/2026
DOL	DOL		TERSAL CONTRACTORS, INC.		221 GARDNER RD P.O BOX 14POMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		TERSAL DEVELOPMENT CORP.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL	****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		TIMOTHY PERCY		29807 ANDREWS ROAD BLACK RIVER NY 13612	10/17/2023	10/17/2028
DOL	DA	****1050	TRI STATE CONSTRUCTION OF NY CORP.		50-39 175TH PLACE FRESH MEADOWS NY 11365	03/28/2022	03/28/2027
DOL	DA	****4106	TRIPLE H CONCRETE CORP		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	****8210	UPSTATE CONCRETE & MASONRY CONTRACTING CO INC		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	****6418	VALHALLA CONSTRUCTION, LLC.		796 PHLEPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	NYC	****2426	VICKRAM MANGRU	VICK CONSTRUCTI ON	21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	NYC		VICKRAM MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DOL		VIKTORIA RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	NYC	****3673	WALTERS AND WALTERS, INC.		465 EAST AND THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL	****8266	WILLIAM CHRIS MCCLENDON	MCCLENDON ASPHALT PAVING	1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM CHRIS MCCLENDON		1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM G. PROERFRIEDT		85 SPRUCEWOOD ROAD WEST BABYLON NY 11704	01/19/2021	01/19/2026
DOL	DOL	****5924	WILLIAM G. PROPHY, LLC	WGP CONTRACTIN G, INC.	54 PENTAQUIT AVE BAYSHORE NY 11706	01/19/2021	01/19/2026

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DOL	DOL		XENOFON EFTHIMIADIS		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028

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Technical Specifications

SECTION 000107 – PROFESSIONAL SEALS AND CERTIFICATIONS

PROJECT

Name: John Jay Homestead Site and Building Enhancements
Location: John Jay Homestead
400 Jay Street
Katonah, NY 10536

PROFESSIONALS OF RECORD

The following design professionals have signed and sealed the original plans and specifications for this project/contract:

Architect:

Beyer Blinder Belle
Architects & Planners
120 Broadway, 20th Fl.
New York, NY 10271



Sign & Seal

08/19/2024
Date

Civil Engineer:

CHA Consulting, Inc.
575 Broadway, Suite 301
Albany, NY and 12207



Sign & Seal

08/19/2024
Date

Mechanical Engineer:

Landmark Facilities Group
252 East Avenue,
Norwalk, CT 06855



Sign & Seal

08/19/2024
Date

Structural Engineer: Thornton Tomasetti
120 Broadway, 15th Fl.
New York, NY 10271



Sign & Seal

08/19/2024

Date

Landscape Architect: Rhodeside Harwell
Landscape Architecture
347 West 36th Street,
Suite 1201
New York, NY 10018



Sign & Seal

08/19/2024

Date

END OF DOCUMENT 000107

TECHNICAL SPECIFICATIONS VOLUME 1 OF 3

for

**JOHN JAY HOMESTEAD
SITE AND BUILDING ENHANCEMENTS**

**John Jay Homestead
400 Jay Street
Katonah, New York**

Prepared for:

New York State Office of Parks, Recreation and Historic Preservation
Taconic Region

by:

Beyer Blinder Belle Architects & Planners LLP
New York, NY

TA-JJ-2023-001

10 JULY, 2024

CLIENT

New York State Parks, Office of Parks
Recreation & Historic Preservation (NYSOPRHP)
625 Broadway
Albany NY 12207

NYSOPRHP Taconic Region
PO Box 308- 9 Old Post Road
Staatsburg, NY 12580

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ARCHITECT, PRIME

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New York, NY 10271

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Norwalk, Ct 06855

CIVIL ENGINEERING

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Albany, NY 12207

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Rhodeside Harwell Landscape Architecture
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New York, NY 10018

LIGHTING ENGINEERING

HLB Lighting
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New York, NY 10016

SIGNAGE

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New York, NY 10271

HAZARDOUS MATERIALS

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New York, NY 10018

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ABBREVIATIONS

Parks	New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP)	Division 1
BBB	Beyer Blinder Belle, Architects & Planners, LLP	Architect
TT	Thornton Tomasetti	Structure Engineering
LFG	Landmark Facilities Group	MEP / IT / FP Engineering
CHA	CHA Consulting, Inc.	Civil Engineering
RHI	Rhodeside Harwell Landscape Architecture	Landscape Architect
HLB	HLB Lighting	Lighting Engineering
LVCK	LVCK – A Beyer Blinder Belle Studio	Signage
Matrix	Matrix New World Engineering	Hazardous Materials

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SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1. SUMMARY

A. This Section addresses:

1. Type of Contract
2. Physical Completion Date
3. Work covered by Contract Documents.
4. Work performed by NYS OPRHP
5. Owner-furnished/Contractor-installed (OFICI) Products
6. Compliance
7. Laying out.
8. Related Documents
9. Related Contracts
10. Incidental Cleaning
11. Special Events
12. Additional Insurance
13. Physical Damage
14. Specification and Drawing conventions
15. Historic Preservation Statement

1.2. TYPE OF CONTRACT

- ##### A.
- Lump Sum price contract consisting of lump sum work items. The Project will be constructed under a single prime contract.

1.3. PHYSICAL COMPLETION DATE

- ##### A.
- Physically complete the Work within the duration indicated on the bid form.

- B. The time allowed includes 10 days for notifying the Contractor of the Comptroller's approval of the Agreement.
- C. The approval of the Agreement by the Comptroller constitutes the filing of the Contract Documents as a public record and notice to the Contractor that a fully executed contract exists between the Contractor and the State.
- D. NYS OPRHP does not set the date for the approval of the Agreement by the Office of the State Comptroller. However in order to expedite approval, it is critical that ALL Contractors submit required paperwork in required timeframe after bid. Refer to Contract Submittals Checklist included in this project manual for more information.

1.4. WORK COVERED BY CONTRACT DOCUMENTS

- A. The description of the Work in this section does not, and is not, intended to list every element of work but to provide guidance highlighting key elements of work that are included in Scope of Work. Read all Contract Documents thoroughly. Scope is outlined below.

B. ARCHITECTURAL

1. BEDFORD HOUSE - INTERIOR

- a. Restore existing wood and plaster substrates throughout, including replacement of missing lath, patching of missing or cracked plaster areas, and skim coating of all walls and ceilings. Remove existing loose/deteriorated painted finishes. Remove existing wall and floor coverings.
 - 1) Historic wallcoverings and carpets provided by parks & installed by contractor. All items to be turned over by parks to contractor for installation at the time of contract award. Verify all items are accounted for, sufficient in quantity, in good condition and secure. Contractor to assume all responsibility for damage or loss during storage or installation. All carpets, floorcloths and wallcoverings are custom made and required long lead times.
- b. Install historic wall coverings, floor finishes including carpet and floor cloth, restore existing wood floors, and paint wall and ceiling finishes where indicated.
 - 1) Historic wallcoverings and carpets require custom installation methods. Reproduction wallcoverings require hand trimming, pattern matching & careful installation to accommodate historic building imperfections (not square, uneven walls & trim). Carpets and floor cloths also require hand trimming, sewing seams and underlayment. See specification sections 096816.
- c. Restore existing windows throughout: replace deteriorated wood elements to match existing, replace cracked glazing, replace window putty, replace missing or damaged hardware, provide textured glazing to match existing where indicated, restore window operation where currently inoperable and new storm windows where indicated.
- d. Remove existing fireplace surrounds where indicated, and install salvaged historic marble surrounds, including replacement of missing marble elements.

- e. Restore existing wood stairs to remain, including replacement of missing or damaged decorative elements, refastening of loose decorative elements and handrail system. Removal, cataloging, and reinstallation of stair elements in original location as required to allow for structural repair work.
- f. Remove stair where indicated and provide new structure / substrate at floor and ceilings. Patch walls and match all wall, ceiling and floor finishes to match existing adjacent.
- g. Restore existing interior doors throughout. Maintain existing historic sample at each door which illustrates historic paint layers.
- h. All interior doors must be fully operational and able to latch shut
- i. Remove existing lighting fixtures at interior and exterior where noted, and install new lighting fixtures in new and existing locations throughout.
- j. Install new exterior stair and lift at front porch.
- k. Install new interior ramps, elevator, and stair at interior.
- l. Modify localized floor levels for ADA access.
- m. Provide new saddles in locations as noted throughout. Bevel existing saddles at indicated locations to provide ADA access.
- n. Renovate or remove existing bathrooms.
 - 1) At locations where no new bathrooms will be installed, or where a fixture will be removed, cap plumbing connections.
 - 2) At locations where new bathrooms will be installed in existing configurations, replace all fixtures and finishes.
 - 3) At locations where bathrooms will be reconfigured/expanded, provide new plumbing, new fixtures and plumbing connections, new wall/floor/ceiling finishes, new full height toilet stall partitions and doors, and new lighting.
- o. Install exterior subgrade waterproofing where indicated.
- p. Restore room for discovery zone kitchen.
- q. Remove existing ramp and install new concrete topping slab with new brick floor at porch 124. Cut & resupport existing Timber posts to accommodate raised floor. Remove exist. Windows & provide new insulated glass doors and windows at west elevation.
- r. Remove exist. Conc. Slab and provide new slab on grade at vestibule 117. Shore, cut & refound existing. Support posts to accommodate for raised floor height. Provide new insulated wall with new door and salvaged windows and salvaged wood siding. Provide new bluestone flooring.
- s. Install LULA elevator.

2. BEDFORD HOUSE EXTERIOR

- a. Roof:

- 1) Replace wood shingles at roof. Repair roof sheathing as needed.
- 2) Replace bituminous membrane at flat roofs with resin roofing.
- 3) Repair brick at chimneys and provide new caps where existing are damaged.
- 4) Replace copper gutters and leaders in existing locations.
- 5) Repair existing lightning protection system. Refer to electrical drawings.
- 6) Add replace copper flashing, including all step flashing at chimneys.
- 7) Provide new chimney crickets and install snow guards.
- 8) Tie leaders into exist. Subsurface drains.
- 9) Remove exist. Skylight & provide new skylight on new curb.

b. Facades:

- 1) Strip and repaint all wood siding. Reattach displaced units. Repair cracks, remove unused anchors and replace deteriorated panels.
- 2) Strip, clean, repoint and repaint brick masonry areas. Replace spalled, cracked or deteriorated units.
- 3) Clean and repoint stone masonry. Repair cracked units and remove unused anchors. Provide new stone units where missing.
- 4) Remove cracked concrete slab and prep for new topping slab.
- 5) Infill (3) existing lightwells and cellar windows at courtyard.

c. Doors:

- 1) Replace damaged or missing elements at doors and door surrounds including restoration of side lites at (2) locations.
- 2) Repair cracked or checked wood.
- 3) Replace glazing putty and cracked lites.
- 4) Strip and repaint doors and door surrounds.

d. Structural rehabilitation to the Bedford House as it relates to the conversion of the house to exhibition space.

e. Structural modifications to the Bedford House as it relates to the installation of new accessibility features.

3. CARRIAGE BARN / VISITOR CENTER

- a. Reorganize the building so that it is entered from a newly designed courtyard at the north with the 1911 annex used for visitor services and ticketing and the original carriage barn fully devoted to an expanded exhibit space.
- b. Increase the number of restrooms for visitors (3 gender neutral restrooms to be provided)
- c. Make the building fully accessible. Raise floor in various areas to achieve this.
- d. Provide new doors.

4. BRICK COTTAGE

- a. Create new IT closet. Provide new partitions, with wall louver and door, for IT closet enclosure located in the basement. Coordinate with electrical drawings for new service.
- b. Provide utility lighting from entry door to basement IT closet. Coordinate with electrical drawings.

C. STRUCTURAL ENGINEERING

1. BEDFORD HOUSE

- a. Structural reinforcement of ground and second floor framing to accommodate code-minimum residential live loads
- b. Releveling of the main stair stringers at the connection with the second floor header, and reinforcement of the existing stair railing
- c. Provision of a new staircase from basement to third floor and associated demolition and structural framing
- d. Provision of new ramps in lieu of steps between rooms 105 & 113, and rooms 108 & 122, including associated demolition and structural framing
- e. New stair at front deck with structural reinforcement and detailing to accommodate an accessibility lift
- f. Demolition of horizontal flue and pilaster within rooms b-12 and 127, and associated structural reinforcement and framing
- g. Demolition of the existing slab on grade at room 117 and provision of a new slab on grade, access hatch and reinforcement thereof, elevator pit, and existing column base preparation to accommodate proposed finished floor elevation.
- h. Existing column base preparation at room 124 to accommodate proposed finished floor elevation.
- i. Infill of existing stair within rooms 114, 213, and 310

2. CARRIAGE BARN

- a. Homogenizing ground floor elevation by removing and reinstating existing flooring on new sleepers overtop existing joists.
- b. Provision of new headers and trimmers around proposed openings to facilitate in-floor glazing systems for views of original foundation walls below.

D. HAZARDOUS MATERIALS (HAZMAT)

1. BEDFORD HOUSE

- a. Remove the following assumed asbestos-containing materials:
- b. Corrugated pipe insulation, pipe insulation, subgrade waterproofing tar, braided wire insulation, boiler components, 12"x12" tan vinyl floor tile and associated mastic, chimney components, flashing to skylight, multi-layer roofing composite, and exterior vapor barrier.
- c. Remediate microbial growth and manage lead-based paint / lead-containing paint

E. LANDSCAPE, CIVIL AND WAYFINDING

1. TREE PREPARATION (PRIOR TO THE START OF CONSTRUCTION)

- a. Air spade trenching to expose roots of existing trees at proposed site work.
- b. Evaluation of the exposed tree roots and root and/or crown pruning to mitigate site construction impact on the existing trees.

2. TREE PROTECTION DURING CONSTRUCTION PRESERVATION

- a. Tree protection fencing around groups of trees within the areas of work.
- b. Closing off farm road during construction to protect the existing allee of trees. Opened only for the construction of the new farm road and adjacent landscape work.
- c. Installation of root protection matting at areas of site work around existing trees.

3. HARDSCAPE

- a. The repaving of farm road to become the main vehicular entrance to the site, with the removal of the existing road and small parking lot in the center of the lawn leading up to Bedford House .
- b. Installation of a 90+ space, terraced parking area located in the northeast corner of the site near the existing orchard. The upper terrace parking area will be chip seal asphalt and the lower terrace will have a combination of chip seal drive aisle and parking row, and reinforced turf grass system parking spaces. Grade changes between the terraces will be managed by a concrete retaining wall.
 - 1) Please indicated the following: 3 rows of chipseal parking spaces and one row of reinforced turf.
- c. The parking lot will be accessed by a new chip seal roadway connected to the farm road across from the potting shed. The road will head east along the edge of the existing meadow on the south side of the brick lot then head north just east of the existing stone walls east of the prefab cottage to the parking area.
- d. Vehicular access controls will be located at the intersections of the farm road and maple row and at the new access road to the parking lot. The gated arms will limit access to the internal roadway system to authorized vehicles.

- e. The internal roads will be narrowed and replaced with new chip seal pavement and used only by parks and other authorized vehicles only. This will mainly be for drop off in front of the Bedford House for deliveries and maintenance vehicles.
- f. Installation of chip seal accessible path system that will connect the parking lot with the visitor center, Bedford House, laundry building, potting shed, and the gardens. The accessible paths at some locations will include ramps with handrails to meet accessible path requirements.
- g. The courtyard between the Coachman's House and Carriage Barn will be lowered to meet accessibility requirements and paved with an accessible, aggregate, paving system. A new path and stairs will allow access to the mechanical space on the ground floor of the Coachman's House. The east, south, and west sides of courtyard will be pitched to surface drains. Bluestone pavers will be located at the entry door to the carriage barn.
- h. The existing bluestone at the west terrace of the Bedford House will be salvaged and reset on a new concrete base to create an accessible path to the ballroom from the front of the house. The ballroom entrance is relocated to the west side and the existing path will be extended around the corner.
- i. Bedford House rear garden courtyard will need to be disrupted by building foundation work and will be replaced. A bluestone patio will be located on the south end of the garden and bluestone paths like the perimeter connecting to the path at the northeast side of the house. A central lawn area will be edged by raised stone planters. Various furnishings will be located in the garden including tables and chairs, benches, birdbath and planted urns.
- j. Existing stone walls that have failed will be restored and the openings in the ha ha walls will be restored.
- k. The farm road existing brick entry piers will be removed and new stone piers and columns will mark the new farm road entry, also requiring the reconstruction and relocation of the end of the existing stone walls.

4. LANDSCAPE

- a. The allee of trees will be restored along farm road and brick lot road using species native to the northeast and complimentary to the existing tree species which currently line the road.
- b. A small number of deciduous and ornamental trees will be placed around the site at key locations, including a linden tree in front of the Bedford House .
- c. The overgrown lilac hedge west of farm road above the stone wall will be removed and replaced with a new hedge of a small variety of lilac species, slightly moved west to get out of the canopy of the trees lining farm road.
- d. The new parking area at the northwest corner of the site will impact the heritage orchard. The existing fruit trees will be transplanted nearby early in the project next to the parking area. Two dead apple trees will be replaced in-kind.
- e. New shrub, groundcover, and perennial planting will be installed in front of the Bedford House porch and the south side of the Coachman's House.

- f. Remove shrubs and flowers encroaching onto the path from the planting bed located between the path and ballroom.
- g. New low maintenance foundation plantings will be installed around Bedford.
- h. Screen plantings will be installed on the north side of the site above Bedford House to screen the water tank. In addition, screen planting will be installed at the north end of the parking lot. Screening will be provided to conceal electrical equipment at the Maintenance Building.
- i. Existing lawn areas disturbed by construction will be repaired and reseeded. Places where pavement is removed will be reseeded.
- j. A meadow consisting of native seed mix will line both sides of the new meadow road.
- k. Bioretention areas will be seeded with a native seed mix and planted with a variety of native trees and shrubs.
- l. Orchard transplanting to be done in late February, early march of 2025.
- m. Tree tagging to be completed no later than early spring 2025.
- n. All tree, shrub and groundcover plantings to be completed by the end of the fall planting season of 2025.

5. WAYFINDING AND SIGNAGE

- a. Provide wayfinding and regulatory signage throughout the site
- b. Provide interpretive signage at building entries
- c. Provide gateway monument at site entry
- d. Provide orientation kiosks

6. STORMWATER MANAGEMENT

- a. Proposed development of new stormwater management to mitigate the new impervious areas along the meadow road and orchard parking lot. The development may include but not limited to; bioretention basin, catch basins, manholes, planters, and vegetative swales.

F. MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION ENGINEERING

1. SITE

a. Mechanical

- 1) Overview: provide closed-loop geothermal ground loops for heating and cooling the Bedford House.
- 2) Provide bore holes and piping only for main barn and visitor center.
- 3) Refer to mechanical scope for each building for ground loop information.

b. Electrical

- 1) Overview: replace the existing single phase power feed to the property with a new three phase service that will provide both single and three services to the buildings.
- 2) A new three phase service will be brought in from Jay street. The 13.2kv primary will run from the existing utility pole on the south side of Jay St. Overhead to a new riser pole on the north side of Jay St. On the street side of the stone wall. New pole is provided by NYSEG and will be located close to the tree line to better conceal it from the Bedford House.
- 3) From the riser pole, NYSEG will run primaries underground to one of the utility-owned fused switch boxes south of the pump house. This switch box serves as the shut off point for the two single phase transformers, one 100a service for the pump house and 100a service for the potting shed, the other transformer near the maintenance garage for that building along with the Carriage Barn, Coachman's House, Laundry Building, Main Barn and Carpenter's Shop. New meter bank to be provided at the maintenance garage. This switch box will also tie into the second switch box by the parking lot.
- 4) NYSEG will provide primary lines between the first switch box and the second switch box. The second switch box serves two three phase transformers, one adjacent to the second switch box which provides a 200a service to the parking lot for the seven (7) EV charging stations and a 200a service to the brick cottage. The other transformer is located near the laundry building and serves an 800a service to the Bedford House.
- 5) All primary and secondary utility lines and conduit will be run underground throughout the complex. Existing utility poles on property will be removed.
- 6) Due to the limited electrical needs of the school house and playhouse, branch circuits will be run from the Bedford House to serve these buildings' loads.
- 7) Site lighting will be provided at pedestrian paths/walkways, parking areas, drives and externally illuminated signage. Branch circuiting for site lighting from the Bedford House includes low voltage transformers and timeclock control with override features via a central lighting control system with relay panels located in the Bedford House.
- 8) New internet service will be provided from Jay St. The carriage barn will serve as the demarc and a fiber line in conduit will be brought to each of the buildings. The carpenters shop will be provided with an independent line from Jay St.

2. BEDFORD HOUSE

a. Mechanical

- 1) Overview: replace the existing chilled water cooling/hot water heating system with a new geothermal heat pump system
- 2) Geo-Exchange Bore Field

- a) Install a new vertical bore field in the land to the southwest of the Bedford House
- b) Bore field to consist of 15 vertical 4" diameter boreholes 500 feet deep
- c) Install 2 500 foot sections of 1-1/2" HDPE tubing with a fusion-welded u-bend at the bottom of the tubing in each borehole
- d) Install thermally enhanced grout in each borehole
- e) Install a manifold vault adjacent to the loop field. The manifold vault will have three supply lines on the supply header and three return lines on the return header.
- f) Each supply and return line will feed five boreholes. The piping for each group of bore holes is to be arranged in a reverse return fashion.
- g) Run a 4" supply and return line between the vault and the basement of the Bedford House.
- h) Install 2 pumps in the basement of the Bedford House to circulate water through the ground loop and the water-source VRF heat pump units.

3) HVAC System

- a) Remove the 4 pipe air handlers and fan-coil units in the house. Retain the existing supply and return ducts
- b) Remove chilled water and hot water piping in the Bedford House.
- c) Install two water-source VRF heat pumps compressor units in the basement
- d) Install 5 new indoor air handler to replace existing 4 pipe air handlers
- e) Install new free-standing VRF console units to replace existing console fan coil units.
- f) Provide new automatic control system

b. Electrical

- 1) Overview: replace the existing single phase service to the building with a new 3 phase service.
- 2) New three phase service will originate from a new transformer located behind the laundry building and enter the building in the basement. It will terminate in a main service disconnect switch that will feed a new 800a, three phase distribution panel (MDP). This panel will include a circuit breaker to back feed the existing 600a single phase distribution panel. New 'MDP' will contain additional circuit breakers to serve new subpanels in the basement and one at the third floor for power to new mechanical, lighting and receptacle loads.
- 3) New lighting throughout building with local a central lighting control system including two relay panels, emergency transfer panel and a central battery

inverter for back-up power for egress lighting. Occupancy sensors will be provided in restroom stalls.

- 4) Existing fire alarm system including the VESDA system will be modified to accommodate the structural renovations of the building.
- 5) An IT rack will be provided to provide data to the workstations and wireless access points throughout the building.
- 6) Cabling will be provided for security devices such as motion sensors, glass break sensors, window and door contacts and security cameras.

c. Plumbing

- 1) Overview: modify the existing plumbing systems to support the new architectural plans.
- 2) Plumbing work includes: new toilets, lavatories, water heater, modifications to domestic hot and cold-water piping for new restrooms, and modifications to sanitary waste & vent piping for new restrooms.
- 3) Existing well water supply and sanitary waste to septic system to remain

d. Fire Suppression

- 1) Overview: modify the layout of the existing mist fire suppression system to support new architectural plans
- 2) Relocate existing Marioff sprinkler heads and/or add new ones where indicated on plans. Overview: modify the layout of the existing mist fire suppression system to support new architectural plans
- 3) Relocate existing Marioff sprinkler heads and/or add new ones where indicated on plans.
- 4) Remove and reinstall existing fire protection piping in areas where structural repairs are indicated.

e. Fire Detection

- 1) Overview: modify the layout of the existing VESDA fire detection system to support new architectural plans
- 2) Relocate detection intake points and tubing or provide new as needed.

3. CARRIAGE HOUSE / VISITOR CENTER, COACHMAN'S HOUSE AND MAIN BARN

a. Mechanical

- 1) Overview: install infrastructure for a new geothermal heat pump system
- 2) Geo-exchange bore field (common for Red Barn & Coachmen's House)

- a) Install a new vertical bore field in the land to the west of the visitor's center
 - b) Bore field to consist of 9 vertical 4" diameter boreholes 500 feet deep
 - c) Install 2 500 foot sections of 1-1/4" HDPE tubing with a fusion-welded u-bend at the bottom of the tubing in each borehole
 - d) Install thermally enhanced grout in each borehole
- 3) Boreholes will be divided into three groups for piping and each group will have a 2" supply and 2" return line to the basement of the Coachmen's House. (total 6 pipes to bore field)
- 4) Connect 3 boreholes groups in a manifold in the basement of the Coachmen's House.
- b. Electrical
 - 1) Coachmen's House electrical system
 - a) A new 200a single phase underground service will originate from a transformer by the maintenance garage. This transformer will also serve the maintenance garage, carriage barn, laundry building, carpenters shop and main barn.
 - b) New 200a, 120/240v, single phase panel at the lower level will backfeed the existing panel.
 - c) Branch circuiting to new mechanical loads.
 - 2) Visitor center electrical system
 - a) A new single phase underground service from will originate from the transformer at the maintenance garage and tie into the existing panel.
 - b) Branch wiring to building loads.
 - 3) Main barn electrical system
 - a) A new 100a single phase underground service will originate from the transformer at the maintenance garage and tie into the existing panel.
- c. Plumbing
 - 1) Visitor center plumbing system
 - a) Overview: modify the existing plumbing systems to support the new architectural plans.
 - b) Plumbing work includes new toilets, lavatories, water heater, modifications to domestic hot and cold-water piping for new restroom and modifications to sanitary waste & vent piping for new restroom
 - c) Existing well water supply and sanitary waste to septic system to remain

d. Fire Detection

- 1) Overview: provide new addressable fire alarm systems for each building.
- 2) Provide smoke detectors for heated areas and heat detectors for unheated areas.
- 3) Provide pull stations by egress doors
- 4) Provide ADA compliant horn/strobe annunciators
- 5) Install a fire alarm annunciator panel where indicated on plans
- 6) Tie systems into dialers for automatic notification.

4. BRICK COTTAGE

a. Electrical

- 1) Overview: new 200a, 120/208v three phase underground service from three phase pad mounted transformer located at the parking lot.
- 2) Electrical work includes:
- 3) New main panel in basement to serve minimal lighting and receptacle loads and provide power to the gate opener.
- 4) Provide IT rack and network switch with cat6 cabling to gate intercom and controls.

5. LAUNDRY BUILDING

a. Electrical

- 1) A new single phase underground service will originate from the transformer at the maintenance garage and tie into the existing panel.

6. MAINTENANCE BUILDING

- a. A new single phase underground service from transformer at existing pad near east end of building and tie into the existing panel.

7. CARPENTERS SHOP

a. Electrical

- 1) Carpenters shop electrical system
 - a) A new single phase underground service from will originate from the transformer at the maintenance garage and tie into the existing panel.

8. POTTING SHED

a. Electrical

1) Potting shed electrical system:

- a) A new single phase underground service from transformer south of pump house and tie into the existing panel.
- b) New 6u IT rack with network switch and cabling to pole mounted security camera.

G. GENERAL CONSTRUCTION CONTRACTOR (GCC)

- 1. General Construction Contractor is responsible for all items indicated in the Contract Documents, with the exception of items that fall under the responsibility of other Contracts as indicated below or elsewhere in the Contract Documents. The General Construction Work involves multiple areas of construction. The General Construction Contractor will coordinate their work with other Contractors.

1.5. WORK PERFORMED BY NYS OPRHP

- A. Subsequent Work: Owner will perform the following additional work at site after Substantial Completion. Completion of that work will depend on successful completion of preparatory Work under this Contract.
 - 1. Owner will install the following items.
 - a. Select light fixtures on Contractor-installed junction boxes, as indicated in Drawings.
 - b. Perpetual stove installed in the 1820's Kitchen in a recess created by the Contractor.

1.6. OWNER-FURNISHED/CONTRACTOR-INSTALLED (OFICI) PRODUCTS

- A. Owner's Responsibilities: Owner will furnish products indicated and perform the following, as applicable:
 - 1. Provide to Contractor Owner-reviewed Product Data, Shop Drawings, and Samples.
 - 2. Provide for delivery of Owner-furnished products to Project site.
 - 3. Upon delivery, inspect, with Contractor present, delivered items.
 - a. If Owner-furnished products are damaged, defective, or missing, arrange for replacement.
 - 4. Obtain manufacturer's inspections, service, and warranties.
 - 5. Inform Contractor of earliest available delivery date for Owner-furnished products.
- B. Contractor's Responsibilities: The Work includes the following, as applicable:
 - 1. Designate delivery dates of Owner-furnished products in Contractor's construction schedule, utilizing Owner-furnished earliest available delivery dates.

2. Review Owner-reviewed Product Data, Shop Drawings, and Samples, noting discrepancies and other issues in providing for Owner-furnished products in the Work.
3. Receive, unload, handle, store, protect, and install Owner-furnished products.
4. Make building services connections for Owner-furnished products.
5. Protect Owner-furnished products from damage during storage, handling, and installation and prior to Substantial Completion.
6. Repair or replace Owner-furnished products damaged following receipt.

C. Owner-Furnished/Contractor-Installed (OFICI) Products:

1. Specialty wall coverings.
2. Floorcloth.
3. Carpets and runners.

1.7. COMPLIANCE

- A. Comply with applicable Federal, State and local regulations including but not limited to: NYS Building Code, NYS Department of Labor, OSHA, NYS DEC, NYS OPRHP, NYS DOT, etc.

1.8. LAYING OUT

- A. Examine the Contract Documents thoroughly and promptly. Report any errors or discrepancies to the Director's Representative before commencing the Work. **Report any unknown or latent field conditions to the Director's Representative.**
- B. Lay out the Work in accordance with the Contract Documents.

1.9. RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to all Sections. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.
- B. In the event of ambiguity or conflicts, contact the Director's Representative in writing immediately. Conflicts or discrepancies among the Contract Documents shall be resolved in the following order of priority:
1. Amendments, addenda, and revisions (such as Change Orders) of later date take precedence over those of earlier date;
 2. the Agreement;

3. the Supplementary Conditions;
4. the General Conditions;
5. Drawings and Specifications; In the event of ambiguity or conflicts, the greater quantity and the higher cost shall govern.

1.10. RELATED CONTRACTS

- A. Not used.

1.11. INCIDENTAL CLEANING

- A. Contractor is responsible for keeping their work areas clean from debris and for protection of surrounding construction from damage such as breakage, marking, denting, staining, soiling, etc. Contractor shall promptly clean materials soiled during or by construction progress caused by their work or items of their work to prevent permanent damage from occurring.

1.12. SPECIAL EVENTS

- A. VIP Tours of the Construction Site to demonstrate project advancement.

1.13. ADDITIONAL INSURANCE

- A. No additional insurance.

1.14. PHYSICAL DAMAGE

- A. The Contractor is responsible for damage to existing construction, including materials and equipment furnished but not yet installed, resulting from the operations of the Contractor's employees, and those of its subcontractors and suppliers.
 1. New materials and equipment shall be repaired or replaced with items that duplicate the approved items in every respect. The decision to repair or replace shall be at the sole discretion of NYS OPRHP.
 2. Historic elements and features shall be conserved, repaired, or restored at the sole discretion of NYS OPRHP. If the nature of the work requires special skills or expertise, the NYS OPRHP reserves the right to have the work performed by a firm or individual of their choosing at the Contractor's own expense. NYS OPRHP reserves sole judgment in determining whether or not repairs require special skill or expertise.

1.15. SPECIFICATION AND DRAWING CONVENTIONS

- A. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Terminology: 'Owner' and 'Parks' refer to NYS OPRHP. 'Director's Representative' and 'Owner's Representative' refer to the Construction Manager.

1.16. HISTORIC PRESERVATION STATEMENT

- A. This project involves work on a National Historic Landmark structure.
 - 1. Historic elements and features shall be conserved, repaired, or restored at the sole discretion of NYS OPRHP. If the nature of the work requires special skills or expertise, the NYS OPRHP reserves the right to have the work performed by a firm or individual of their choosing at the Contractor's own expense. NYS OPRHP reserves sole judgment in determining whether or not repairs require special skill or expertise.
 - 2. Refer to specification section 01 35 00.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 011100 SAFETY

PART 1 GENERAL

1.1 SUMMARY

- A. This section requires compliance with applicable Safety codes, standards, and regulations, including but not limited to OSHA, Building Code of New York State, Fire Code of New York State, and Facility Regulations.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Summary of the Work: Section 011000.

1.3 DEFINITIONS, ABBREVIATIONS

- A. OSHA: Occupational Safety and Health Administration.
- B. BCNYS: Building Code of New York State.
- C. EBCNYS: Existing Building Code of New York State.
- D. FCNYS: Fire Code of New York State.
- E. NFPA: National Fire Protection Association.
- F. NEC: NFPA 70E.

1.4 SUBMITTALS

- A. Contractors shall provide their Project Safety Plan no later than 15 days after approval of the Contract by the Comptroller. The plan must include at a minimum:
 - 1. Cover page including Project Name/Location/Project Number/Contractor Name/Potential Start/Finish Dates.
 - 2. Complete Scope of work.
 - 3. Roles and Responsibilities page identifying Supervision, list of the names of all competent and/or qualified persons, including their qualifications, for each activity requiring a competent person i.e., access to and work at heights, scaffolding, rigging, fall protection, etc.
 - 4. A program for providing proper care for injured employees, including the name of the employee with First Aid/CPR certification who will be on site at all times during the course of construction, to include local hospital/medical facility locations and contact information.
- B. Accident Reporting: The Director's Representative shall be immediately notified of any and all accidents. A copy of a written accident report shall be furnished to the Director's Representative within 24 hours of an incident

1. After any incident on site resulting in an employee being injured or damage to property, a Post- Accident Review Investigation shall be held as soon as possible after any incident. As a minimum, this investigation will involve the injured person, his/her supervisor, the responsible project superintendent and/ or supervisor and the onsite safety supervisor. The contractor shall be responsible to provide a written Post- Accident Corrective Action Plan, which will detail immediate steps taken to correct any unsafe condition that led to injury/property damage, long- term actions to prevent repeat incidents from happening on the site, and roles and responsibilities of individuals who will be implementing the corrective measures, which will be reviewed for effectiveness and continually monitored for implementation.

1.5 STOP WORK ACTIVITY AUTHORITY

- A. All NYS Parks Representatives have the authority to stop a work activity that exposes any Contractor employees to potentially serious injury and/or illness. The responsible Contractor shall immediately cease work, perform an assessment of the activity that is exposing employees to any Immediately Dangerous to Life or Health (IDLH) conditions, and take action necessary to satisfactorily address the unsafe condition(s), at no cost to the State. The activity may only resume when a NYSOPRHP Representative and respective Contractor's Safety Representative verify corrective measures have been satisfactorily completed. Any related impact to time of completion shall be considered within the Contractor's control.
- B. No work, other than mobilization, shall commence by Contractors until their Project Safety Plan has been submitted and accepted.

1.6 ADDITIONAL SAFETY POLICIES THAT WILL BE ADHERED TO THROUGHOUT THE CONSTRUCTION PHASE

- A. All contractors are required to utilize head (hardhat) and eye protection (safety glasses) at all times well within the project limits.
- B. Any employee exposed to equipment/vehicles shall be required to utilize an ANSI Level 2 Safety Work Vest.
- C. Contractors are strictly prohibited from utilizing any state-owned equipment or materials during construction.
- D. Seatbelts shall be utilized when operating all heavy equipment designed to be operated in a seated position. When traveling in a vehicle, all employees shall be seated in a secured seat with a seatbelt in place.
- E. Inspections of scaffolding prior to use, and excavations prior to entry shall be documented by an on-site competent person. Documented inspection will be available on-site for inspection by the Director's Representative.
- F. All electrical cords/water hoses, if feasible, shall be run overhead to avoid additional slip/trip hazards. If not feasible due to physical restrictions, cords/hoses shall be placed to avoid all walkways and work areas.
- G. All heavy equipment being utilized on site shall have a fire extinguisher of suitable size/rating within reach of operator.

- H. Any fuel-powered equipment shall have a fire extinguisher of suitable size/rating no closer than 10 feet and no further than 25 feet from the equipment.
- I. All electrical work shall be done when panels/lines/boxes have been de-energized and locked out, unless otherwise approved in writing by the Director's Representative.
- J. An applicable sized Spill Kit shall be available on all jobsites where heavy equipment is being utilized Work

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 011100

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SECTION 011400 - WORK RESTRICTIONS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Owner's occupancy and use of the premises.
- B. Contractor's use of the premises.
- C. Utility outages and shutdown.
- D. Restricted work period.
- E. Work methods.
- F. Continuity of Work.

1.2 OWNER'S OCCUPANCY AND USE

- A. The Site will be occupied by facility staff during construction. Limited public access will also be required.
 - 1. Staff will be located in a contractor provided construction trailer at the staging area. Maintain safe egress area around the trailer and between parking area and trailer.
 - 2. Staff will also routinely accessing Bedford House and outbuilding. Staff will coordinate access with Construction Manager.
- B. Facility staff on-site housing will be occupied during construction. Provide egress and access to housing.
 - 1. Notify occupant of power, utility, access interruptions through the construction manager. Notify 24 hrs in advance of planned disruptions.
 - 2. Coordinate vehicular & pedestrian access and parking through CM during construction period.
- C. Volunteers groups will require access to Formal Gardens & Terrace Garden for maintenance and care of gardens.
 - 1. Volunteers to have access to specified areas (1) business day a week (Thursday) from 7:30AM to 3:30PM during the planting season (April 1 – November 1).
 - a. Volunteers will check in w/ CM and be required to stay in designated areas.
 - b. Provide 2 week notice of restricted access to garden areas (April 1- November 1).
 - 2. Facility staff will assist with plant debris removal and will require access to compost area or temporary plant material dump.
- D. Public access will be required at various coordinated times during construction with John Jay Homestead associated non-profit groups.

1. Parks, CM and Contractor to coordinate and facilitate pre-scheduled tours of progress during construction.
 - a. Two weeks' notice will be provided of potential tours as construction advances.
 - b. Group size, tour area, time and date to be coordinated to ensure safety for all participant.

1.3 CONTRACTOR'S USE OF PREMISES

- A. Use of Site: Limit use of the premises to areas indicated. Keep driveways and entrances to buildings clear and accessible to the Owner. Do not obstruct access to fire hydrants or fire lanes.
 1. Do not diminish existing level(s) of life safety during performance of the Work.
 2. Maintain work areas clean and free of debris.
 3. Locate and post required notices where directed.
- B. Storage: Provide secure facilities for on-site storage of materials and locate as directed. Materials and equipment may not be stored in Owner's facilities.
 1. Schedule deliveries to minimize use of driveways and entrances.
 2. Coordinate deliveries to conform to the progress schedule and to minimize the time required for storage on the premises.
- C. Parking: Parking: Parking for the Contractor's and their subcontractor's employees shall be in the dedicated staging area unless otherwise directed.
 1. Vehicles shall be permitted to load or unload at the Main House, but **shall not block fire lanes** or otherwise compromise building and public safety and security.
- D. Access to Interior Spaces: The Contractor will not be permitted use of any interior spaces except as needed to perform the Work of this Contract.
 1. Refer to Section 01 35 00 for additional requirements pertaining to security and personal identification.
- E. Smoking is not permitted within the Owner's facilities, within 20 feet of any entrance or upon scaffolding or staging: Locate designated smoking areas where directed. Keep designated smoking areas clean.
- F. Prohibited items: The following items are not permitted to be brought onto the premises:
 1. Firearms, ammunition, explosives, weapons, or dangerous instruments (other than tools required for the Work).
 2. Drugs or Alcohol or persons under the influence of the same.
 3. Illegal controlled substances or persons under the influence of same.

1.4 UTILITY OUTAGES AND SHUTDOWN

- A. General: Do not interrupt utility services or branch services within the building.
 1. IF Fire Alarm and Suppression system are disabled provide a FIRE WATCH
 - a. FIRE WATCH is to be a dedicated individual (no other duties) to patrol work areas and non-work areas during the entire period that the fire system is disabled. FIRE WATCH is to be maintained until the system is confirmed to be fully operational.
 - b. Notify CM of all outages and shutdowns immediately.

2. Maintain the existing security alarm system during the Work of this Contract. Where the work requires disengagement of security systems, schedule temporary shutdowns with the Director's Representative. All security systems must be fully operational at the end of each work shift.

1.5 RESTRICTED WORK PERIOD

- A. **On-Site Work Hours: Perform work at the premises Monday through Friday, between the hours of 7:00 A.M. and 5:00 P.M., except on official State holidays.**
- B. The performance of Work on-site during other times requires prior approval of the Director's Representative.
- C. No laborer, worker, or mechanic in the employ of a contractor or subcontractor engaged in the performance of any public work project shall be permitted to work more than eight hours in any day or more than five days in any week, except in cases of extraordinary emergency. The Contractor and OPRHP may apply to the Bureau of Public Work for a dispensation permitting workers to work additional hours or days per week on a particular public work project. There are very few exceptions to this rule. Complete information regarding these exceptions is available on the "4 Day / 10 Hour Work Schedule Form (PW 30R)."

1.6 WORK METHODS

- A. The Director's Representative reserves the right to disapprove the Contractor's method(s) of operation, size or quantity of equipment used if, in his opinion, improper materials or workmanship are being used or unsatisfactory work or damage to existing construction might result. Upon notification of such disapproval, the Contractor shall modify his methods, materials, or equipment used to perform the Work to comply with the terms of this Contract.

1.7 CONTINUITY OF WORK

- A. Contractors that control the schedule shall engage the project by working consecutive days on site until the work is completed and accepted. Absence for durations longer than three (3) consecutive days shall be approved in writing by the Director's Representative, unless it is determined that the work must be paused or delayed due to the status or progress of other contractors, inclement weather, prescribed work stoppages, etc.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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SECTION 01 21 00 ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
- B. Include in the **Total Bid Amount** the Allowances stated in this section. Refer to Bid Form.
- C. No work in excess of the specified allowance will be permitted unless approved by the Directors Representative.
- D. The actual requested allowance amount will be reviewed and approved or rejected by Directors Representative, on the accuracy and completeness of the cost of pricing and data submitted

1.2 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Field/ Change Orders.
- B. Submit invoices or delivery slips to show actual cost and quantities of materials delivered to the site for use in fulfillment of each allowance.

1.3 FIELD ORDER ALLOWANCE

- A. **Used for miscellaneous field change orders during construction subject to Office's Approval.**

1.4 UNUSED MATERIALS

- A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to NYS OPRHP, after installation has been completed and accepted.
 - 1. If requested, prepare unused material for storage by NYS OPRHP when it is not economically practical to return the material for credit. If directed by NYS OPRHP, deliver unused material to designated storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. **FIELD ORDER ALLOWANCE**

1. **Total Field Order Allowances:**

- a. **General Construction – See Bid Form**

END OF SECTION

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for designated work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Office decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Base Bid Amount to incorporate alternate into the Work.
 - 2. See Instructions to Bidders for Award of Contract with respect to Alternates.

1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Following the award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A Schedule of Alternates is included at the end of this Section.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES DELETE IF ALTERNATES NOT USED

- A. The following Alternate descriptions are intended to be general in nature and are not intended to list all specific aspects and elements involved in each. See Contract Drawings for more information.
- B. **ADD Alternate No. 1: CARRIAGE BARN/VISITOR CENTER.** Convert to a four-seasons building.
 - 1. CARRIAGE BARN / VISITOR CENTER
 - a. ARCHITECTURAL
 - 1) Insulate Exterior Walls And Roof Of The 1911 Annex And The Floor Of The Hayloft In The Original Structure So The Building Has 4 Season Building Usage
 - 2) Selectively Remove Portions Of Walls In The Original Building For Visitor Flow As An Exhibit Space
 - 3) Repaint All Wood On The Exterior (Siding, Windows, Doors, Shutters, Trim)
 - 4) Repaint All Wood On The Interior (Walls, Ceilings, Columns, Doors, Windows)
 - 5) Expand And Reorganize The Ticketing Area
 - 6) Expand And Reorganize The Gift Shop Area
 - 7) Provide New Lighting
 - b. MECHANICAL, CARRIAGE BARN
 - 1) Overview: install a new geothermal heat pump system
 - a) Install 2 pumps in the basement of the coachmen's house to circulate water through the ground loop and the water-source heat pump units in visitor's center HVAC system
 - b) Run geothermal loop supply and return from below grade to heat pumps in 2nd floor mechanical room
 - c) Install two new water-to-air heat pumps in new mechanical room on 2nd floor
 - d) Support the heat pumps on spring vibration isolators.

- e) Provide watertight pan below entire heat pump.
- f) Run sheet metal ductwork across the 2nd floor to feed ceiling supply and return grilles.
- g) Insulate ductwork with r-8 cellular glass insulation.
- h) Provide a new toilet exhaust fan for the restroom. Each stall to have an exhaust grill.
- i) Provide new automatic control system.

c. ELECTRICAL, CARRIAGE BARN

- 1) New 200a single phase panel in new location to feed existing loads to remain as well as new receptacles, mechanical loads, and new lighting throughout building.

d. PLUMBING, CARRIAGE BARN

- 1) Coachman's House
 - a) Overview: modify the existing plumbing systems to provide make-up water feed for geothermal loop
 - b) Plumbing work includes modifications to domestic cold-water piping

e. FIRE DETECTION, CARRIAGE BARN

- 1) Overview: provide new addressable fire alarm systems for each building.
- 2) Provide smoke detectors for heated areas and heat detectors for unheated areas.
- 3) Provide pull stations by egress doors
- 4) Provide ADA compliant horn/strobe annunciators
- 5) Install a fire alarm annunciator panel where indicated on plans
- 6) Tie systems into dialers for automatic notification.

2. COACHMAN'S HOUSE

a. ARCHITECTURAL

- 1) Install concrete slab for new mechanical room for geothermal equip in east bay of cellar. Provide slab on grade to replace exg wood floor

b. Mechanical

- 1) Provide 1.5" valved and capped connections for future use in the coachmen's cottage.

c. Electrical

Add led strip lights to new mechanical room with local switch.

- C. **ADD Alternate No. 2: LAUNDRY BUILDING ACCESSIBILITY.** Add new stair and inclined lift.
1. Reorganize accessible approach to building with new entrance porch, stairs and inclined platform lift.
 2. Provide accessible pathway to laundry building.
 3. Provide stepped ramp to laundry building..
 4. Electrical
 - a. New 100a, single phase 30 pole panel with breakers to serve existing loads as well as stair lift and handrail lighting
- D. **ADD Alternate No. 3: POTTING SHED IMPROVEMENTS.** Replace stairs and miscellaneous improvements.
1. Replace two sets of stairs on east elevation.
 2. Replace hatch over exterior stair to basement on east elevation.
 3. Replace door and hardware to meeting room and east elevation.
 4. Provide new ADA access ramp with deck & entry stair on east entrance for accessible access to shed and garden to the west
 5. Provide new wood stair from potting shed to cellar
 6. Cut and reinforce new opening in central foundation wall to connect both cellars.
 7. Electrical
 - a. New 100a, single phase 30 pole panel with breakers to serve existing loads as well as two sump pumps and lighting in the basement.
 - b. Wireless access point in ceiling.
- E. **ADD Alternate No. 4: BRICK COTTAGE STABILIZATION.** Exterior repair and shoring of building.
1. Roof replacement
 - a. Localized roofing repairs at existing copper and asphalt shingle roofs, at locations identified in the field by the architect. Repair material to be compatible with existing roofing system.
 2. Interior shoring. Standard wood timber shoring at interior, located in basement, 1st & 2nd floors. Refer to structural drawings.
 3. Gutter replacement. Replace all gutters & leaders per drawings & specifications.
 4. Chimney repairs & cap replacement. Chimney repairs per drawings & specifications. Includes replacement of chimney flashings with copper reglet flashings at all chimneys.
 5. Masonry repointing & brick replacement at locations identified in the field by the architect.

6. Repair existing window. Replace wood window sills as indicated on elevations and per details.
7. Plywood protection. Install plywood protection at basement access door, east elevation 2nd fl. Window & louver & at all basement window openings. Refer to elevations for locations. Work includes the following:
 - a. Install 3/4" TH. Pressure treated plywood with stainless steel anchors into masonry joints. Do not install anchors into body of masonry unit.
8. Injection grout repair. At brick masonry locations noted on drawings. Refer to elevations & structural drawings.
9. Masonry repointing & grout injection repair at interior of basement masonry walls.
10. Wood - replace deteriorated element.
 - a. Replace portions of the wood fascia boards per drawings & specifications.

END OF SECTION

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SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
 - 2. Divisions 02 through 33 Sections for specific requirements and limitations for substitutions.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use CSI Form 13.1A or similar or as provided by Director's Representative.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - 1) Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, as necessary to accommodate proposed substitution.

- c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Director's Representative of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Field Order or Change Order, Construction Change Directive, or Director's Representative's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Director's Representative does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Requested substitution provides sustainable design characteristics that specified product provided.
 - c. Substitution request is fully documented and properly submitted.
 - d. Requested substitution will not adversely affect Contractor's construction schedule.
 - e. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides specified warranty.
 - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
 - j. Requested substitution meets the requirements of Article 5 of the General Conditions.
- B. Substitutions for Convenience: Not allowed.

PART 3 - EXECUTION: NOT USED

END OF SECTION 012500

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SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section contains procedures that clarify and supplement those prescribed by Article 11 of the General Conditions (Change Orders) and Specification Section 01 21 00 (Allowances).

1.2 SECTION INCLUDES

- A. Field Directive
- B. Request for Information
- C. Request for Proposal
- D. Field Order

1.3 FIELD DIRECTIVE

- A. The Director's Representative may issue a Field Directive authorizing minor changes in the Work that, in the opinion of the Director's Representative, do not require an adjustment in the Contract Sum or in the Time of Completion.
- B. If a Contractor believes that a Field Directive merits an increase in either the Contract Sum or the Time of Completion, he shall immediately notify the Director's Representative and submit a written explanation to substantiate the claim(s). In such an event, the Contractor shall NOT proceed further with the Field Directive except where directed otherwise in writing.
 - 1. The Director's Representative shall promptly review the Contractor's claim of additional compensation or time for completion and provide a written response. The Director's Representative may rescind or modify the directive.
 - 2. Any Field Directive subsequently determined to warrant a change in the Contract Sum or Time of Completion will be re-issued as a Field Order or a Change Order.

1.4 REQUEST FOR INFORMATION

- A. The Contractor shall prepare a written Request for Information (RFI) when needed to clarify the intended function, performance, or installation of any component or procedure required by the Contract. RFIs shall be delivered to the Director's Representative for a response.
 - 1. The Contractor shall make every reasonable effort to identify and prepare RFIs as soon as practical so as to avoid any unnecessary delay in the progress of the Work or need for changes to items already approved, purchased or to work already completed.

- B. The Director's Representative will promptly respond to all RFIs and, when needed, coordinate a response from the Consulting Engineer or Architect. The Contractor shall re-direct his workforce until the RFI is resolved. The Contractor shall immediately notify the Director's Representative when a delay in the response to an RFI might result in a change to the Time of Completion.

1.5 REQUEST FOR PROPOSALS

- A. A Request for Proposal (RFP) does not constitute instructions to modify the scope of work. Acceptance of any RFP will be established by an approved Field Order or Change Order.
- B. An RFP may be initiated by either the Contractor or the Director's Representative.
- C. NYS OPRHP Initiated Proposal Requests
 - 1. The Director's Representative will issue an RFP for changes that may require an adjustment in the Contract Sum or the Time of Completion. Do not stop work in progress or execute the proposed change unless specifically directed to do so by the Director's Representative.
 - 2. Within the time specified in the RFP, or as soon as practical if no time is specified, the effected Contractor(s) shall submit a detailed estimate of cost adjustments to the Contract Sum and/or increase in the Time of Completion. The estimate shall include a breakdown of labor, materials and equipment. Include all associated costs relating to delivery charges, equipment rental, project record documents, and overhead and profit in the estimate. Overhead and profit shall be determined by one of the methods described in Article 11 of the General Conditions.
 - 3. The Director's Representative will review the RFP and may request changes to the proposal that best serve the interests of the State.
- D. Contractor-Initiated Proposal Requests
 - 1. If latent or unforeseen conditions require changes in the Work of the Contract, a Contractor may propose changes by submitting a RFP to the Director's Representative. Do not stop work in progress or execute the proposed change unless specifically directed to do so by the Director's Representative.
 - 2. The Contractor shall include a written explanation of the reasons for the change and describe the effect of the proposed change upon the work of other contractors, the Contract Sum, or the Time of Completion. Include a detailed estimate of the cost of labor, materials and equipment to substantiate any change in the Contract Sum.
 - 3. If a RFP is accepted, the Director's Representative will issue a Field Order or a Change Order.

1.6 FIELD ORDER

- A. The Director's Representative may issue a Field Order that instructs a Contractor to proceed with certain items of Work. A Field Order does not adjust the Contract Sum but rather is funded by the Field Order Allowance which is included in the original Contract Sum.
- B. The Field Order shall contain a complete description of the proposed change in the Work and a fixed dollar amount or other basis for determining the final cost of the change. The Contractor shall maintain accurate records for Work performed on a time and material or unit price basis.

- C. Total Field Order Allowance shall be listed on the FIN112 Payment Application continuation page "Schedule of Values" as a line item, adjusted downward by the approved field order line items when applicable.
- D. Contractor shall use NYS OPRHP provided documentation forms for the Field Order. The Field Order cover sheet shall be prepared by the Director's Representative for attachment and approval by the Contractor.

1.7 CHANGEORDER

- A. Any change in the Time of Completion or Contract Sum shall be made in the form of a Change Order. A Change Order shall not be binding until approved by the Comptroller.
- B. Change Orders shall be listed on a separate continuation sheet attached to the FIN112 Application for Payment.
- C. Change Orders shall comply with Article 11 of the General Conditions.
- D. Contractor shall use NYS OPRHP provided documentation forms for the Change Order. The Change Order cover sheet shall be prepared by the Director's Representative for attachment and approval by the Contractor.

PART 2 - PRODUCTS: NOT USED

PART 3 - EXECUTION: NOT USED

END OF SECTION

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SECTION 01 27 00 UNIT PRICES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Unit Prices not indicated on this Contract.**

PART 2 - PRODUCTS-NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

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SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Detailed Estimate.
- B. Application and Certifications for Payment.
- C. Final Application for Payment.

1.2 DETAILED ESTIMATE

- A. Prepare and submit a detailed breakdown of the Contractor's lump sum bid within 10 days after pre-construction meeting. List all major work items individually, including separate prices for labor and materials.
 - 1. Correlate work items with Specification Sections. Provide at least one line item for each Specification Section.
 - 2. Provide a line item for each allowance identified in Section 01 21 00. Provide a line item for each accepted alternate.
 - 3. List contract closeout individually.
 - 4. Distribute the total value of overhead and profit proportionately among all line items.
- B. The Contractor shall use the Detailed Estimate TAC102 form.
- C. The Detailed Estimate shall be supported by such evidence, including certified copies of subcontracts and supplier quotations, as the Director's Representative may require.
- D. The Detailed Estimate shall be approved by the Director's Representative, who may revise it as necessary to make the various items conform to their true values. The purpose for the Detailed Estimate is to assist in determining and approving application payment amounts based on estimated percentage of completion.
- E. Application for payments will be made based upon the percentage of work completed and the approved Detailed Estimate.
- F. Contractor shall make sure that values indicated on the detailed estimate are accurate and true and reflect values entered on the MWBE Monthly Payment Statement.

1.3 APPLICATIONS FOR PAYMENT

- A. Prepare and submit payment applications in draft form as a “pencil copy” using forms as directed by NYS OPRHP. When approved by the Director’s Representative, submit three original signed copies.

- B. Payment application periods: Prepare and submit applications on a monthly basis. Applications shall accurately reflect the percentage of work completed as of the date indicated.
 - 1. The period ending date for any given payment application shall never be beyond the current contract completion date.
 - 2. The contractor shall not sign or submit the payment application before the work period ending date.
- C. Transmit payment applications to the Director's Representative.
- D. Certified payrolls must be submitted with all applications for payment. Certified payroll shall be submitted through the period ending date entered on the Application for Payment. Payments will not be processed without full certified payroll through the period ending date.
- E. As required by Department of Labor, OSHA 10 cards shall be submitted for any employees listed on the Certified Payroll.
 - 1. An MWBE Cumulative Monthly Payment Statement shall be submitted with all applications for payment.
- F. Retainage will be held for the duration of this project in the amount of 5%. It may be reduced at the discretion of the Director's Representative once the project has reached substantial completion. The amount reduced will be determined by the Director's Representative.

1.4 FINAL APPLICATION FOR PAYMENT

- A. Final payment application with all supporting documents shall be submitted within 20 days after the "Joint Inspection for Physical Completion".
- B. See specification section 01 77 00 for documents and other requirements prior to final payment.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 PERMITS AND COMPLIANCE

- A. The Contractor shall obtain, maintain and pay for all permits, licenses, third party inspections legally required and shall give all notices, pay all fees and comply with all laws, rules and regulations applicable to the Work at no additional cost. Building Permit will be issued by Parks.

1.2 JOB MEETINGS/ SITE VISITS

- A. PRE-BID SITE VISIT. A pre-bid site visit is recommended. Observe actual conditions and verify dimensions, elevations, etc. Any discrepancies shall be reported to the Director's Representative immediately. Formal/ technical questions may be asked using the RFI form provided. The Contractor shall verify his/her understanding of the scope and extent of the Work to be performed as part of the Contract Documents.
- B. PRE-CONSTRUCTION MEETING. Before starting the Work, arrange a Pre-construction Meeting with Director's Representative to review existing conditions, and the proper installation of materials. Attendees shall include all parties directly affecting the Work of this Section.
 - 1. MASTER SCHEDULE MEETING. Contractor shall meet with the Director's Representative to develop the baseline Master Progress Schedule. The date of the initial meeting will take place as agreed to at the pre-construction meeting.
 - 2. PRE-TESTING & INSPECTION. A meeting with staff from NYS OPRHP, the Contractor, the Consultants and the testing companies may be requested to plan for tests and inspections required for this project. Please refer to Section 014300 Quality Assurance for required tests. The date of this meeting will take place as agreed to at the pre-construction meeting.
- C. PROJECT MEETINGS. Subsequent or regular Project Meetings will be held to review progress and quality of the Work, resolve discrepancies, discuss unforeseen conditions and expedite the Work. The frequency of these meetings will be established prior to beginning work at the pre-construction meeting. Contractor must attend each meeting.
- D. PRE-INSTALLATION MEETINGS. The NYS OPRHP reserves the right to request special meetings prior to installation of critical or unique construction items. Attendance by manufacturer representatives, sub-contractors, etc. may be required.

1.3 CONTRACTOR'S MASTER PROGRESS SCHEDULE

- A. Master Schedule shall be submitted to the NYS OPRHP no later than 10 days after the date of the Master Schedule Meeting. Progress payments will not be processed until the Master Progress Schedule is adopted by the NYS OPRHP. The schedule, when approved by the NYS OPRHP, shall become the baseline schedule and establish the dates for starting and completing work for the various portions of the Contract. It shall be the duty of all Contractors to conform to the approved schedule and to perform its work within the time limits indicated.
- B. The Master Progress Schedule shall be a Critical Path Method (CPM) type construction schedule showing, in detail, the proposed sequence of the work and the estimated date of starting and completing each stage of the work in order to complete the project within the contract time. Prepare the schedule in a manner so that the actual progress of the work can be recorded and compared with the expected progress. Coordinate the schedule with the proposed schedules of equipment suppliers and subcontractors. Identify the “critical path” of the project including all major milestones. An updated schedule (in legible format) shall be brought to each project meeting. A Gantt style chart is recommended.
- C. The Contractor’s Progress Schedule shall also show the following:
 - 1. Equipment reservation and delivery dates for major equipment that require special arrangements and that are on the critical path.
- D. Coordinate the work and make every effort to maintain the construction schedule. In the event actual progress begins to lag the schedule, promptly employ additional means and methods of construction to make up the lost time at no additional cost to the NYS OPRHP.
- E. Notify NYS OPRHP, in writing:
 - 1. 72 hours before commencing any work at the site
 - 2. 2 weeks before resuming work after a winter shutdown (if in the approved master schedule) and
 - 3. At least 48 hours before resuming work in the case of a temporary suspension of work.
- F. Keep the Master Progress Schedule current and revise and resubmit as often as necessary to accurately reflect the conditions of the work, past progress and anticipated future progress.
- G. Coordinate letting of subcontracts, material purchases, shop drawing submissions, delivery of materials, and sequence of operations, to conform to the schedule.

1.4 SUBMITTALS

- A. Related Requirements Specified Elsewhere:
 - 1. Other submittal requirements may also be included in other Specification sections. Read other sections carefully.
- B. Initial Contract Submittals shall be made within 10 days of the Pre-construction Meeting (unless otherwise noted). Progress payments will not be processed until the Schedule of Submittals is received by the NYS OPRHP. These include:
 - 1. Detailed Estimate – Refer to PAYMENT PROCEDURES 01 29 00.
 - 2. Schedule of Submittals (OPR107): Submit to the NYS OPRHP a complete list of all submittals for the Project on the OPR 107 Form. Anticipated dates of each submittal

should be indicated. Consider lead time of approvals and material ordering. Refer to “Timing of Submittals” below.

3. Contractor’s List of Sub-contractors and Suppliers (TAC103 form).
4. Project Schedule – Refer to section 1.3A above.

C. Some submittals may be reviewed by the NYS OPRHP Consultants and other parties. Exact routing of methodology of submittals will be established with input from all parties prior to construction.

D. All submittals shall be quality prints or electronic images. They must be legible. Font size shall be 10 point minimum.

E. TIMING OF SUBMITTALS

1. Make submittals promptly in accordance with approved schedule (OPR107), and in such sequence as to cause no delay in the work or in the work of any other Contractor.
2. Make submission for approval prior to delivery of materials to job site. If material or equipment is installed before it is approved, the Contractor shall be liable for its removal and replacement at no charge if, in opinion of the NYS OPRHP, material or equipment does not meet intent of Plans and Specifications.
3. Make submissions well in advance as the returning, rejecting, disapproval of submissions, or other similar circumstances are possible, and are deemed “avoidable delays”. Costs for these delays or those attributed to Contractor’s tardiness in making submittals shall be borne by the Contractor. To avoid delays, begin submittal process immediately after pre-construction meeting.

F. Electronic Format - Submittals and Shop Drawings

1. Submit single electronic submissions means to reduce costs, time, and environmental impacts. Submittal or construction management software or web-based tools may be used if approved.
2. Format: Submittals shall be made in Adobe PDF (Portable Document Format) or as a TIFF format image.
3. Contact the Director’s Representative if you have any questions regarding electronic submittals.

G. Samples

1. Submit two (2) (unless otherwise specified herein) of each sample required by the specifications. Samples shall show the quality, type, range of color, finish and texture of the material intended to be furnished for the Work.
2. Samples shall become the property of the NYS OPRHP when submitted unless specifically stated otherwise, and will not be incorporated into the Work [unless specifically stated otherwise in the respective specification section].
3. Samples of colors shall be actual paint samples not reproduced color swatches or printed material.

H. Qualification Data

1. Submit qualification data for the personnel specified in “Quality Assurance” Articles of applicable specification sections that demonstrate that the personnel have capabilities and experience complying with the specified requirements.
2. Qualification data must be submitted to the Director’s Representative at least thirty (30) days prior to execution of any work under the applicable section.
3. Note that several sections require “Restoration Specialists” for the work of that section.

I. Safety Data Sheets (SDS)

1. Comply with “Right to Know” requirements of Chapter 551 of Laws of New York, 1980, concerning notification of the use of toxic substances.
2. Any product or substance used by the Contractor or its subcontractors which is listed in Subpart Z of OSHA Part 1910 Title 29 of the Code of Federal Regulations entitled “Toxic and Hazardous Substances” shall be identified to the Owner by the Contractor’s submission of a standard Safety Data Sheet.

J. Additional Submittal Requirements

1. Identify all submittals by project title and number. Include Contractor’s name, date and revision dates. On shop drawings, product data and samples also include name of subcontractor and supplier, applicable specification section number and Contractor’s stamp, initialed or signed, certifying to review and approval of submittal, verification of field measurements and compliance with contract documents.

K. CONTRACTOR’S RESPONSIBILITIES

1. Consultant review of submittals shall not relieve contractor of responsibility for any deviation from the requirements of the contract documents unless contractor has informed the Consultant, in writing, of such deviation at the time of submission, including reasons for and technical significance of the deviation and Consultant has given written approval to the specific deviation, nor shall Consultant’s approval relieve contractor from responsibility for errors or omissions in the submittals.
2. No portion of the work requiring a submission shall be commenced until the submission has been found in general compliance with the Contract Documents by Consultant or Licensed Design Professional.
3. For quality control purposes, Contractor shall provide complete submittals for systems or elements of the same component of construction.

PART 2 - PRODUCT

- A. Not used.

PART 3 - EXECUTION

- A. Not Used

END OF SECTION

SECTION 013100 – PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 1. General coordination procedures.
 2. Coordination drawings.
 3. Requests for Information (RFIs).
 4. Project meetings.
- B. Related Requirements:
 1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 3. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. RFI: Request from Owner (or Director's Representative), Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use form as provided by Director's Representative.
 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.
 4. Insurance certificates.
- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names,

addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all time.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Contractor shall coordinate its construction operations with those of subcontractors and OPRHP to ensure efficient and orderly installation of each part of the Work. Contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work.
 1. Administrative activities include, but are not limited to, the following:
 2. Preparation of Contractor's construction schedule.
 3. Preparation of the schedule of values.
 4. Installation and removal of temporary facilities and controls.
 5. Delivery and processing of submittals.
 6. Progress meetings.
 7. Preinstallation conferences.
 8. Project closeout activities.
 9. Startup and adjustment of systems.
 10. Commissioning activities.

1.6 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.

- b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
- c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
- d. Indicate space requirements for normal operations, routine maintenance, and for anticipated replacement of components during the life of the installation.
- e. Show location and size of access doors and clearances required for access to concealed dampers, valves, and other controls.
- f. Indicate required installation sequences.
- g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

- 1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
- 2. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
- 3. Structural Penetrations: Indicate penetrations and openings required for other Work.
- 4. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
- 5. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
- 6. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger and cable trays.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm device locations.
 - c. Motion detector, occupancy sensor, daylight sensor, and other electrical system control device locations.
 - d. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
 - e. Location of pull boxes and junction boxes, dimensioned from column center lines.
- 7. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared

in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make changes as directed and resubmit.

- C. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
 - 1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
 - 2. File Submittal Format: Submit or post coordination drawing files using format same as file preparation format.
 - 3. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
 - a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings

1.7 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI using form provided by the Director's Representative.
 - 1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 - 1. Project name.
 - 2. Project number.
 - 3. Date.
 - 4. Name of Contractor.
 - 5. Name of Architect.
 - 6. RFI number, numbered sequentially.
 - 7. RFI subject.
 - 8. Specification Section number and title and related paragraphs, as appropriate.
 - 9. Drawing number and detail references, as appropriate.
 - 10. Field dimensions and conditions, as appropriate.
 - 11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 - 12. Contractor's signature.
 - 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: NYSOPRHP OPR-103.
 - 1. Attachments shall be electronic files in Adobe Acrobat PDF format.

- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were returned without action or withdrawn.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.8 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Virtual Meeting Access: Provide a virtual meeting option with call-in number for all meetings.
 - a. Virtual meeting access shall not replace on-site presence for Key Personnel. Key Personnel must attend in person.
 2. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.

3. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 4. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect.
1. Conduct the conference to review responsibilities and personnel assignments.
 2. Attendees: Authorized representatives of Owner Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Lines of communications.
 - f. Procedures for processing field decisions and Change Orders.
 - g. Procedures for RFIs.
 - h. Procedures for testing and inspecting.
 - i. Procedures for processing Applications for Payment.
 - j. Distribution of the Contract Documents.
 - k. Submittal procedures.
 - l. Preparation of record documents.
 - m. Use of the premises and existing building.
 - n. Work restrictions.
 - o. Working hours.
 - p. Owner's occupancy requirements.
 - q. Responsibility for temporary facilities and controls.
 - r. Procedures for moisture and mold control.
 - s. Procedures for disruptions and shutdowns.
 - t. Construction waste management and recycling.
 - u. Parking availability.
 - v. Office, work, and storage areas.
 - w. Equipment deliveries and priorities.
 - x. First aid.
 - y. Security.
 - z. Progress cleaning.
 - aa. Commissioning activities.
 4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, and Owner's Commissioning Authority of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility requirements.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written instructions.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
 - z. Startup and adjusting procedures.
 - aa. Commissioning procedures
 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Director's Representative and Architect, but no later than 90 days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 2. Attendees: Authorized representatives of Director's Representative and Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of record documents.

- b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Submittal of written warranties.
 - d. Requirements for preparing operations and maintenance data.
 - e. Requirements for delivery of material samples, attic stock, and spare parts.
 - f. Requirements for demonstration and training.
 - g. Preparation of Contractor's punch list.
 - h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - i. Submittal procedures.
 - j. Owner's partial occupancy requirements.
 - k. Responsibility for removing temporary facilities and controls.
 - 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- E. Progress Meetings: Conduct progress meetings at biweekly intervals.
- 1. Coordinate dates of meetings with preparation of payment requests.
 - 2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work. Required attendees must attend in person. Virtual attendance at some meetings may be granted at the discretion of the Owner.
 - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of the Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Resolution of component conflicts.
 - 4) Status of submittals.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Progress cleaning.
 - 10) Quality and work standards.
 - 11) Status of correction of deficient items.
 - 12) Field observations.
 - 13) Status of RFIs.
 - 14) Status of proposal requests.
 - 15) Pending changes.
 - 16) Status of Change Orders.

- 17) Pending claims and disputes.
 - 18) Documentation of information for payment requests.
- 4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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SECTION 013301 – SUBMITTALS PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
 - 1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the schedule of values.
 - 2. Division 01 Section "Administrative Requirements" for submitting schedules and reports, including Contractor's construction schedule.
 - 3. Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 - 4. Division 01 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
 - 5. Division 01 Section "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled date of fabrication.
 - h. Scheduled dates for purchasing.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 > days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
- C. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
 4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name of Contractor.
 - e. Name of firm or entity that prepared submittal.
 - f. Names of subcontractor, manufacturer, and supplier.
 - g. Category and type of submittal.
 - h. Submittal purpose and description.
 - i. Specification Section number and title.
 - j. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Related physical samples submitted directly.
 - n. Indication of full or partial submittal.
 - o. Transmittal number, numbered consecutively.
 - p. Submittal and transmittal distribution record.
 - q. Other necessary identification.
 - r. Remarks.
 5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
 - a. Project name.

- b. Number and title of appropriate Specification Section.
 - c. Manufacturer name.
 - d. Product name.
- D. Options: Identify options requiring selection by Architect.
- E. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- F. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- G. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- H. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
 - 2. Submit electronic submittals via email as PDF electronic files.
 - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
 - 3. Action Submittals: Submit five paper copies of each submittal unless otherwise indicated. Architect will return three copies.
 - 4. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.
 - 5. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.
 6. Submit Product Data in the following format:
 - a. Five paper copies of Product Data unless otherwise indicated. Architect will return three copies.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm).
 3. Submit Shop Drawings in the following format:
 - a. Five opaque copies of each submittal. Architect will retain two copies; remainder will be returned.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.

- b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 - 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 - 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 - 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 - 6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit two sets of Samples. Architect will retain one Sample set; remainder will be returned.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
- 1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 - 2. Manufacturer and product name, and model number if applicable.
 - 3. Number and name of room or space.
 - 4. Location within room or space.
 - 5. Submit product schedule in the following format:
 - a. Three paper copies of product schedule or list unless otherwise indicated. Architect will return two copies.

- F. Coordination Drawing Submittals: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- G. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
- K. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

- T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- U. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- V. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- W. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- X. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
 - 2. Prepare delegated-design drawings in the following format: Same digital data software program, version, and operating system as the original Drawings.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Division 01 Section "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may be returned by the Architect without action

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SECTION 01 35 00 - SPECIAL PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Protection of historic and cultural resources.
- B. Security requirements at the job site.

1.2 RELATED SECTIONS

- A. Section 01 30 00 – Administrative Requirements.
- B. Section 01 43 00 - Quality Assurance.
- C. Section 01 50 00 - Temporary Construction Facilities and Controls.

1.3 PROTECTION OF HISTORIC AND CULTURAL RESOURCES

- A. John Jay Homestead is a National Historic Landmark and is listed on the National Register of Historic Places. The Contractor shall communicate the historic significance of this property to its employees and the employees of its subcontractors and suppliers, and direct each to take precautions to protect and preserve the building.
 - 1. Assume that all existing construction to remain, items noted for removal and salvage, and items noted for removal and reinstallation are original historic materials.
- B. Work of this Contract includes the repair and replacement of historic and archaic materials. Where specified, the replacement of historic building materials must replicate the historic material in all visual and physical qualities, including dimension, profile, color, surface texture, tooling or manufacturing marks, and strength. No allowance in the lump sum price will be considered for the cost of accurately replicating historic and archaic building materials.
- C. Archaeological Resources: Contractor shall promptly advise the Director's Representative of the need to perform any trenching or excavation, drive any anchors or posts into the ground, or otherwise disturb soils before commencing Work of this Contract. Do not proceed with any such work without prior approval from the Director's Representative. Director's Representative will schedule Owner's archaeologists to monitor all excavations.
 - 1. Contractor may be required to adjust the sequence of the Work to allow for any necessary archeological testing and salvage.
 - 2. Excavation within 24-inches of the structure will be performed by hand tools only. No excavating machines are permitted within 24-inches of the structure without written authorization from the Director's Representative.
- D. For more information visit: <http://www.nps.gov/hps/tps/standguide/>

1.4 SECURITY REQUIREMENTS

- A. Prevent unauthorized access to the building and work area by securing openings during non-working hours. Erect temporary construction fences, barriers and appropriate signage to prevent unauthorized access.
- B. The site will remain open to the public during the Work of this Contract. The Contractor shall take every reasonable precaution to protect facility staff and the public from the Work of this Contract, including preventing unauthorized access to ladders, scaffolding and equipment.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 013591 - HISTORIC TREATMENT PROCEDURES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.
- B. The John Jay Homestead is the historic home of John Jay, one of the founding fathers of the United States of America and the nation's first Chief Justice of the Supreme Court. The Homestead comprises the main house, originally constructed between 1797-1801, and numerous other buildings located around the 62 acre site. The property was designated a National Historic Landmark in 1981.
- C. The historical and architectural significance of the buildings and grounds require particular care when intervening with existing fabric to ensure restoration work and the construction of new interventions are of the highest quality and undertaken with appropriate care for the historic fabric.
- D. Restoration work shall retain and restore the historic fabric to the greatest extent possible.

1.2 SUMMARY

- A. Section includes general protection and treatment procedures for the designated historic spaces, areas, rooms and surfaces shown in the attached Appendix and the following specific work:
 - 1. Historic removal and dismantling.
 - 2. Salvage, Storage and Protection of existing historic materials.
 - 3. Temporary protection of historic materials during construction.
 - 4. Documentation including dimensions and photography of historic elements.
- B. Where requirements in this Section overlap with restoration specification sections, the more stringent requirements shall apply.
- C. Related Requirements:
 - 1. Section 024342 "Removal and Salvage of Historic Construction Materials"
 - 2. Section 040300 "Restoration Treatments for Historic Masonry"
 - 3. Section 044101 "Reconstruct Historic Dry-Laid Stone Walls"
 - 4. Section 060312 "Restoration Treatment of Historic Millwork"

5. Section 080300 “Conservation Treatment of Period Openings”
6. Section 090120 “Restoration Treatment of Historic Plaster”

1.3 DEFINITIONS

- A. Consolidate: To strengthen loose or deteriorated materials in place.
- B. Dismantle: To disassemble and detach items by hand from existing construction to the limits indicated, using small hand tools and small one-hand power tools, so as to protect nearby historic surfaces; and legally dispose of dismantled items off-site, unless indicated to be salvaged or reinstalled.
- C. Existing to Remain: Existing items that are not to be removed and are to be salvaged.
- D. Historic: Spaces, areas, rooms, surfaces, materials, finishes, and overall appearance which are important to the successful preservation, rehabilitation, restoration, and reconstruction as determined by Architect. Designated historic spaces are scheduled in this Section.
- E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.
- F. Material in Kind: Materials that match existing material, as much as possible, in species, cut, color, grain, finish, etc.
- G. Preserve: To apply measures necessary to sustain the existing form, integrity, and materials of an historic property, building, or object. Work may include preliminary measures to protect and stabilize the property.
- H. Reconstruct: To remove existing item, replicate damaged or missing components, and reinstall in original position.
- I. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.
- J. Reinstall: To protect removed or dismantled item, repair and clean it as indicated for reuse, and reinstall it in original position, or where indicated.
- K. Remove: Specifically for historic spaces, areas, rooms, and surfaces, the term means to detach an item from existing construction to the limits indicated, using hand tools and hand-operated power equipment, and legally dispose of it off-site, unless indicated to be salvaged or reinstalled.
- L. Repair: To correct damage and defects, retaining existing materials, features, and finishes while employing as little new material as possible. Includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
- M. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.
- N. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

- O. Reproduce: To fabricate a new item, accurate in detail to the original, and in either the same or a similar material as the original, unless otherwise indicated.
- P. Restore: To consolidate, replicate, reproduce, repair, and refinish as required to achieve the indicated results.
- Q. Retain: To keep existing items that are not to be removed or dismantled.
- R. Reversible: New construction work, treatments, or processes that can be removed or undone in the future without damaging historic materials unless otherwise indicated.
- S. Salvage: The process of dismantling material, saving it from being disposed of, protecting it, storing it and preparing it for either reuse or return to the Owner.
- T. Stabilize: To provide structural reinforcement of unsafe or deteriorated items while maintaining the essential form as it exists at present; also, to reestablish a weather-resistant enclosure.
- U. Strip: To remove existing finish down to base material unless otherwise indicated.

1.4 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, commemorative plaques and tablets, urns and urn pedestals, antiques, and other items of interest or value to Owner that may be encountered during removal and dismantling work remain Owner's property. Carefully dismantle and salvage each item or object.
- B. Coordinate with Owner who will establish special procedures for dismantling and salvage.

1.5 COORDINATION

- A. Historic Treatment Sub-schedule: At least seven (7) days prior to the date established for commencement of historic treatment work, submit to the Owner and the Architect a construction schedule coordinating the sequencing and scheduling of historic treatment work for entire Project, including each activity to be performed in historic spaces and on historic surfaces; and based on Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for historic treatment work.
 - 1. Schedule construction operations in sequence required to obtain best historic treatment results.
 - 2. Coordinate sequence of historic treatment work activities to accommodate the following:
 - a. Other known work in progress.
 - b. Tests and inspections.
 - 3. Detail sequence of historic treatment work, including start and end dates.

4. Utility Services: Indicate how long utility services will be interrupted. Coordinate notification of shutoff, capping, and continuation of utility services per 3.2.B.
 5. Use of stairs.
 6. Equipment Data: List gross loaded weight, axle-load distribution, and wheel-base dimension data for mobile and heavy equipment proposed for use. Do not use such equipment without certification from Contractor's professional engineer that the structure can support the imposed loadings without damage.
- B. Public Circulation: Coordinate historic treatment work with public circulation patterns at the Project site. Public circulation patterns cannot be closed off entirely, and in places can be only temporarily redirected around small areas of work. Plan and execute the Work accordingly.

1.6 PRELIMINARY HISTORIC TREATMENT CONFERENCE

- A. Preliminary Historic Treatment Conference: Before starting historic treatment work, conduct a conference at the Palace Theatre, 61 Atlantic Street, Stamford, Connecticut, 06901. This building is a contributing resource in the Downtown Stamford Historic District, listed on both the Connecticut State and National Registers of Historic Places. Therefore, its restoration shall be of the highest standards.
1. Attendees: In addition to representatives of Owner, Architect, and Contractor, testing service representative, historic treatment specialists, chemical-cleaner manufacturer, and installers whose work interfaces with or affects historic treatment shall be represented at the meeting.
 2. Agenda: Discuss items of significance that could affect progress of historic treatment work, including review of the following:
 - a. Historic Treatment Sub-schedule: Discuss and finalize; verify availability of materials, historic treatment specialists' personnel, equipment, and facilities needed to make progress and avoid delays
 - b. Fire-prevention plan
 - c. Governing regulations
 - d. Areas where existing construction is to remain and the required protection
 - e. Hauling routes
 - f. Sequence of historic treatment work operations
 - g. Storage, protection, and accounting for salvaged and specially fabricated items
 - h. Existing conditions, staging, and structural loading limitations of areas where materials are stored
 - i. Qualifications of personnel assigned to historic treatment work and assigned duties

- j. Requirements for extent and quality of work, tolerances, and required clearances
 - k. Methods and procedures related to historic treatments, including product manufacturers' written instructions and precautions regarding historic treatment procedures and their effects on materials, components, and vegetation
 - l. Embedded work such as flashings and lintels, special details, collection of wastes, protection of occupants and the public, and condition of other construction that affect the Work or will affect the work
 - 3. Reporting: Record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from the conference.
- B. Coordination Meetings: Conduct coordination meetings specifically for historic treatment work at bi-weekly intervals. Coordination meetings are in addition to other specific meetings held for other purposes, such as progress meetings and preinstallation conferences, but may be held in conjunction.
- 1. Attendees: In addition to representatives of Owner, Architect, and Contractor, each historic treatment specialist, supplier, installer, and other entity concerned with progress or involved in planning, coordination, or performance of historic treatment work activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conduct matters relating to historic treatment work.
 - 2. Agenda: Review and correct or approve minutes of previous coordination meeting. Review other items of significance that could affect progress of historic treatment work. Include topics for discussion as appropriate to status of Project.
 - a. Historic Treatment Sub-schedule: Review progress since last coordination meeting. Determine whether each schedule item is on time, ahead of schedule, or behind schedule. Determine how construction behind schedule will be expedited with retention of quality; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities are completed within the Contract Time.
 - b. Schedule Updating: Contractor to submit revised Contractor's Historic Treatment Sub-schedule after each coordination meeting where revisions to schedule have been made or recognized. Contractor to issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each entity present, including review items listed in the "Preliminary Historic Treatment Conference" Paragraph above and the following:
 - 1) Interface requirements of historic treatment work with other Project Work
 - 2) Status of submittals for historic treatment work
 - 3) Access to historic treatment work
 - 4) Effectiveness of fire-prevention plan
 - 5) Quality and work standards of historic treatment work

6) Change Orders for historic treatment work

3. Reporting: Contractor to record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.7 INFORMATIONAL SUBMITTALS

- A. Construction Schedule for Historic Treatments: Indicate for entire Project the following for each activity to be performed in historic spaces, areas, and rooms, and on historic surfaces:
 1. Detailed sequence of historic treatment work, with starting and ending dates, coordinated with Owner's continuing operations and other known work in progress.
 2. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.
 3. Use of stairs.
 4. Equipment Data: List gross loaded weight, axle-load distribution, and wheel-base dimension data for mobile and heavy equipment proposed for use. Do not use such equipment without Contractor's professional engineer's certification that the structure can support the imposed loadings without damage.
- B. Qualification Data: For historic treatment specialist, historic removal and dismantling specialist and historic removal and dismantling specialist's field supervisors.
- C. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by Contractor's historic treatment operations.
- D. Historic Treatment Program: Submit before work begins.
- E. Historic Protection Program: Submit before work begins.
 1. Submit detailed plans, sections and details of protective barrier assemblies. identify each assembly and locate all items in plan drawings.
 2. Submit product data specifications for barrier methods, soft padding materials and waterproofing materials used in protection assemblies.
- F. Fire-Prevention Plan: Submit before work begins.
- G. Inventory of Salvaged Items: After removal or dismantling work is complete, submit a list of items that have been salvaged.

1.8 QUALITY ASSURANCE

- A. Historic Treatment Specialist Qualifications: An experienced firm regularly engaged in historic treatments similar in nature, materials, design, and extent to this work as specified in each section,

and that has completed a minimum of five recent projects of similar size, scope, and complexity to the John Jay Homestead with a record of successful in-service performance that demonstrate the firm's qualifications to perform this work.

1. Field Supervisor Qualifications: Full-time supervisors experienced in historic treatment work similar in nature, material, design, and extent to that indicated for this Project. Supervisors shall be on Project site during times that historic treatment work begins and during its progress. Supervisors shall not be changed during Project except for causes beyond the control of the specialist firm.
 2. Worker Qualification: Persons who are experienced in historic treatment work of types they will be performing.
 3. Submit qualifications in writing, including:
 - a. Description of projects
 - b. Duration of projects
 - c. Administrators having authority to approve the work; identify by name and title and provide current address and telephone numbers.
 - d. Identify key personnel of the Contractor, including owner/principal, job supervisor, foreman, and provide resume, education and work experience, current address and telephone numbers for each.
 - e. All subcontractors to the Contractor shall comply with the same criteria for qualifications at the Contractor.
- B. Historic Removal and Dismantling Specialist Qualifications: A qualified historic treatment specialist. General selective demolition experience is not sufficient experience for historic removal and dismantling work.
- C. Historic Treatment Program: Prepare a written plan for historic treatment for whole Project, including each phase or process and protection of surrounding materials during operations. Describe in detail materials, methods, and equipment to be used for each phase of work. Show compliance with indicated methods and procedures specified in this and other Sections.
1. Submit detailed removal, dismantling and salvage procedures including the proposed tools to be used within proximity to sensitive spaces and materials
 2. Proposed monitoring program to be followed throughout construction.
 3. Proposed environmental control program for maintaining appropriate environmental conditions within the historic interiors during the work.
 4. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.

5. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.
- D. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-prevention devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include each fire watch's training, duties, and authority to enforce fire safety.
- E. Inventory of Salvaged Items: Submit digital records of items scheduled to be salvaged.
- F. Mockups: Prepare mockups of specific historic treatment procedures specified in this Section to demonstrate aesthetic effects and to set quality standards for materials and execution.
 1. Erect mock-ups of protective enclosures for all typical conditions at historic materials and spaces.
- G. Regulatory Requirements: Comply with notification regulations of authorities having jurisdiction before beginning removal and dismantling work. Comply with hauling and disposal regulations of authorities having jurisdiction.
- H. Standards: Comply with ANSI/ASSE A10.6.
 1. Historic Treatment Preconstruction Conference: Conduct conference at Project site.
 2. General: Review methods and procedures related to historic treatment including, but not limited to, the following:
 - a. Review manufacturer's written instructions for precautions and effects of historic treatment procedures on materials, components, and vegetation.
 - b. Review and finalize historic treatment construction schedule; verify availability of materials, equipment, and facilities needed to make progress and avoid delays.
 - c. Review qualifications of personnel assigned to the work and assign duties.
 - d. Review material application, work sequencing, tolerances, and required clearances.
 - e. Review areas where existing construction is to remain and requires protection.
 3. Removal and Dismantling:
 - a. Inspect and discuss condition of construction to be removed or dismantled.
 - b. Review requirements of other work that relies on substrates exposed by removal and dismantling work.
- I. Photographic Documentation: Contractor shall provide Architect with before, during, and after construction photographs for each area of work indicated and as determined by the extent of the work confirmation survey. During or "in progress" photographs shall show procedures employed and hidden or "unforeseen" conditions.

1. Take photographs using maximum range of depth of field, and that are in focus, to clearly show the Work performed. Photographs with blurry or out-of-focus areas will not be accepted.
2. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modification using image-editing software. Provide images in the high quality possible.
 - a. Date and Time: Include date and time in the filename for each image.

1.9 STORAGE, PROTECTION, AND HANDLING OF HISTORIC MATERIALS

A. Documentation of elements and dimensioning of the same.

1. Items scheduled to be removed are to be documented, labelled, and photographed prior to removal.
2. Any noted damage or other irregularities are to be called out in a condition assessment form.
3. The labelling method to include the original location and position in a manner sufficiently clear to allow for future reinstallation. Include the following information:
 - a. Numbered Tag for salvaged element as shown on Drawings
 - b. Room name and number
 - c. N/S/E/W wall or elevation
 - d. Course number and unit location
 - e. Orientation

B. Salvaged Historical Materials:

1. Clean only loose debris from salvaged historic items unless more extensive cleaning is indicated.
2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers. Identify contents of containers.
3. Store items in a secure climate-controlled area until returned to the Project site for reinstallation or delivery to Owner. Allow for continued access for Architect for the duration of the work
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.
6. Do not dispose of items removed from existing construction without prior written consent of Owner.
7. Reinstall items in locations indicated in Drawings. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make item functional for use indicated.

C. Historic Materials for Reinstallation:

1. Repair and clean historic items for reinstallation as indicated and to functional condition for reuse.
2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
3. Protect items from damage during transport and storage.
4. Store items in a secure area designated by the Owner and approved by the Architect prior to reinstallation.
5. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make item functional for use indicated.

D. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after historic treatment and construction work in the vicinity is complete.

E. Storage and Protection: When taken from their existing locations, catalog and store historic items within a weathertight enclosure where they are protected from wetting by rain, snow, condensation, or ground water, and from freezing temperatures.

1. Identify each item with a nonpermanent mark to document its original location. Indicate original locations on plans elevations, sections, or photographs by annotating the identifying marks.
2. Secure stored materials to protect from theft.
3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F (3 deg C) or more above the dew point.

1.10 PROJECT CONDITIONS

A. General Size Limitation in Historic Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection, by 12 inches or more.

B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.

C. Hazardous Materials: Hazardous materials are present in construction affected by removal and dismantling work. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.

2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
 3. If unanticipated asbestos is suspected, stop work in the area of potential hazard, shut off fans and other air handlers ventilating the area, and rope off area until the questionable material is identified. Re-assign workers to continue work in unaffected areas. Resume work in the area of concern after safe working conditions are verified.
- D. Storage or sale of removed or dismantled items on-site is not permitted unless otherwise indicated.

1.11 COORDINATION

- A. Coordinate historic treatment procedures in this Section with public circulation patterns around Project site. Some work is near public circulation patterns active streets and sidewalks. Public circulation patterns cannot be closed off entirely, and in places can be only temporarily redirected around small areas of work. Plan and execute the Work accordingly.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Conform to material grades as follows:
1. Lumber: Fire treated, Utility Grade Coastal Douglas Fir or Southern Pine, free from knots, shakes, rot or other defects, straight, square edges and straight grain, air seasoned with maximum moisture content of nineteen (19) percent. Wood shall be S4S, S-Dry, complying with PS-20.
 2. Plywood: Fire retardant treated plywood, CD plywood per APA.
 3. Resilient wood fiber panels: Homasote or material to protect surface with out scratching.
 4. Sheeting: Vapor permeable.
 5. Soft padding: High density foam, non-staining.

2.2 VIBRATIONS AND DISPLACEMENTS

- B. Protect sensitive heritage items from vibrations and sudden movements by combining bracing, rigid paneling and full-surface padding as required.
- C. Use of high-impact mechanical demolition tools is prohibited within the proximity of spaces and items listed as high risk.
- D. Monitoring Equipment
1. Supply seismographs, displacement sensors and related on-site equipment.

2. Equipment will be selected, calibrated, positioned and monitored by specialized technicians

PART 3 - EXECUTION

3.1 HISTORIC REMOVAL AND DISMANTLING EQUIPMENT

- A. Impact of construction related vibration on sensitive historic interiors to be minimized, including for work in non-historic areas adjacent to historic interiors.
- B. Removal Equipment: Use only hand-held tools except as follows or unless otherwise approved by Architect on a case-by-case basis:
 1. Light jackhammers are allowed subject to Architect's approval.
 2. Large air hammers are not permitted.
 3. Lump/sledge hammers are not permitted.
 4. Use of hammer drills into concrete deck is not permitted.
- C. Dismantling Equipment: Use manual, hand-held tools, except as follows or otherwise approved by Architect on a case-by-case basis:
 1. Hand-held power tools and cutting torches are permitted only as submitted in the historic treatment program. They must be adjustable so-as-to penetrate or cut only the thickness of material being removed.
 2. Pry bars more than 18 inches long and hammers weighing more than 2lb are not permitted for dismantling work.
 3. Upward and downward motion of pry bar into drywall or plaster walls/ceilings is not permitted.

3.2 EXAMINATION

- A. Preparation for Removal and Dismantling: Examine construction to be removed or dismantled to determine best methods to safely and effectively perform removal and dismantling work. Examine adjacent work to determine what protective measures will be necessary. Make explorations, probes, and inquiries as necessary to determine condition of construction to be removed or dismantled and location of utilities and services to remain that may be hidden by construction that is to be removed or dismantled.
 1. Verify that affected utilities have been disconnected and capped.
 2. Inventory and record the condition of items to be removed and dismantled for reinstallation or salvage.

3. Before removal or dismantling of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.
 4. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures as a result of removal and dismantling work.
- B. Survey of Existing Conditions: Record existing conditions by use of measured drawings, preconstruction photographs, and Matterport documentation.
1. Photographs to be high resolution JPG format taken with camera with 12-megapixel sensor size and vibration reducing technology.
 2. Include scale and identification details on photograph, corresponding to key plan indicating photograph location.
 3. Matterport scans of all levels of all buildings to be worked on.
- C. Perform surveys as the Work progresses to detect hazards resulting from historic treatment procedures.

3.3 PROTECTION, GENERAL

- A. Comply with temporary barrier requirements in Section 015000 "Temporary Construction Facilities and Controls."
- B. Ensure that supervisory personnel are on-site and on duty when historic treatment work begins and during its progress.
- C. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from historic treatment procedures.
1. Use only proven protection methods, appropriate to each area and surface being protected.
 2. Provide barricades, barriers, and temporary directional signage to exclude public from areas where historic treatment work is being performed.
 3. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of historic treatment work.
 4. Contain dust and debris generated by removal and dismantling work and prevent it from reaching the public or adjacent surfaces.
 5. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
 6. Protect floors and other surfaces along haul routes from damage, wear, and staining.
- D. Temporary Protection of Historic Materials:

1. Protect existing historic materials with temporary protections and construction. Do not deface or remove existing materials.
 2. Do not attach temporary protection to historic surfaces except as indicated as part of the historic treatment program and approved by Architect.
- E. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
- F. Utility and Communications Services:
1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by the historic treatment work before commencing operations.
 2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for the historic treatment work.
 3. Maintain existing services unless otherwise indicated; keep in service and protect against damage during operations. Provide temporary services during interruptions to existing utilities.
- G. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is in working order.
1. Prevent solids such as stone or mortar residue from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from historic treatment work.
 2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.
- H. Existing Roofing to Remain: Prior to the start of work in an area, install roofing protection.

3.4 PROTECTION DURING APPLICATION OF CHEMICALS

- A. Protect motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm or damage resulting from applications of chemical cleaners and paint removers.
- B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in historic treatment program. Use covering materials and masking agents that are waterproof, UV resistant, and will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials staining.

- C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.
- D. Neutralize and collect alkaline and acid wastes and legally dispose of off Owner's property.
- E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.5 PROTECTION FROM FIRE

- A. General: Follow fire-prevention plan and the following.
 - 1. Comply with NFPA 241 requirements unless otherwise indicated. Perform duties entitled "Owner's Responsibility for Fire Protection."
 - 2. Remove and keep area free of combustibles including, rubbish, paper, waste, and chemicals, except to the degree necessary for the immediate work.
 - a. If combustible material cannot be removed, provide fire blankets to cover such materials.
 - 3. Prohibit smoking by all persons within Project work and staging areas.
- B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or highly combustible materials, including welding, torch-cutting, soldering, brazing, paint removal with heat, or other operations where open flames or implements utilizing high heat or combustible solvents and chemicals are anticipated:
 - 1. Obtain Owner's approval for operations involving use of welding or other high-heat equipment. Use of open-flame equipment is not permitted. Notify Owner at least 72 hours before each occurrence, indicating location of such work.
 - 2. As far as practical, restrict heat-generating equipment to shop areas or outside the building.
 - 3. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
 - 4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
 - 5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
 - 6. Fire Watch: Before working with heat-generating equipment or highly combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows.

- a. Train each fire watch in the proper operation of fire-control equipment and alarms.
 - b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.
 - c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.
 - d. Have fire watch perform final fire-safety inspection each day beginning no sooner than 30 minutes after conclusion of work at each area of Project site to detect hidden or smoldering fires and to ensure that proper fire-prevention is maintained.
 - e. Maintain fire-watch personnel at each area of Project site until 60 minutes after conclusion of daily work.
- C. Fire Extinguishers, Fire Blankets, and Rag Buckets: Maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire watch are trained in fire-extinguisher and blanket operation.
- D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.
- 1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby work is completed.

3.6 VIBRATION MONITORING

- A. Comply with relevant city, state and federal regulations, local laws and building codes.
- B. Provide continued monitoring for the duration of excavation work and subsequent high impact construction activities.
 - 1. Coordinate vibration monitoring with Owner's vibration monitoring program, where applicable.
 - 2. Locate vibration monitoring equipment at areas of concern and program to notify designated key personnel if and when established maximum allowable vibration levels have been reached.
 - 3. Ensure that access to monitoring equipment and data is maintained for the full duration of Work.
- C. Displacement or vibration on monitored surfaces shall not exceed the established minimum Particle Velocity.
 - 1. Ornamental wood and plaster ceilings: limit the maximum particle velocity for the ceilings 2mm/sec.

2. Marble sculpture: limit the maximum particle velocity to 2mm/sec.
3. All other marble wall surfaces: 0.3in/sec.
4. If the maximum particle velocity is exceeded or any other demolition procedure is observed to be having a negative impact on historic materials, stop any and all work until the situation is remedied and an effective mitigation is submitted and approved by the Architect and Owner.

3.7 GENERAL HISTORIC TREATMENT

- A. General: Have historic treatment work performed by a qualified historic treatment specialist.
- B. Ensure that supervisory personnel are present when historic treatment work begins and during its progress.
- C. Halt the process of deterioration and stabilize conditions unless otherwise indicated. Perform work as indicated on Drawings. Follow the procedures in subparagraphs below and procedures approved in historic treatment program:
 1. Retain as much existing material as possible; repair and consolidate rather than replace.
 2. Use additional material or structure to reinforce, strengthen, prop, tie, and support existing material or structure.
 3. Use reversible processes wherever possible.
 4. Use historically accurate repair and replacement materials and techniques unless otherwise indicated.
 5. Record existing work before each procedure (preconstruction) and progress during the work with digital preconstruction documentation photographs.
- D. Notify Architect of visible changes in the integrity of material or components whether due to environmental causes including biological attack, UV degradation, freezing, or thawing; or due to structural defects including cracks, movement, or distortion.
 1. Do not proceed with the work in question until directed by Architect.
- E. Where missing features are indicated to be repaired or replaced, provide features whose designs are based on accurate duplications rather than on conjectural designs, subject to approval of Architect.
- F. Where Work requires existing features to be removed or dismantled and reinstalled, perform these operations without damage to the material itself, to adjacent materials, or to the substrate.
- G. Identify new and replacement materials and features with permanent marks hidden in the completed work to distinguish them from original materials. Record a legend of identification marks and the locations of the items on record Drawings.

3.8 HISTORIC REMOVAL AND DISMANTLING

- A. General: Have removal and dismantling work performed by a qualified historic removal and dismantling specialist. Ensure that historic removal and dismantling specialist's field supervisors are present when removal and dismantling work begins and during its progress.
- B. Perform work according to the historic treatment program and approved mockup(s).
 - 1. Provide supports or reinforcement for existing construction that becomes temporarily weakened by the work, until the work is completed.
 - 2. Perform cutting by hand or with small power tools wherever possible. Cut holes and slots neatly to size required, with minimum disturbance of adjacent work.
 - 3. Do not operate air compressors inside building, unless approved by Architect in each case.
 - 4. Do not drill or cut columns, beams, joints, girders, structural slabs, or other structural supporting elements, without having Contractor's professional engineer's written approval for each location before such work is begun.
 - 5. Do not use explosives.
- C. Water-Mist Sprinkling: Use water-mist sprinkling and other wet methods to control dust only with adequate, approved procedures and equipment that ensure that such water will not create a hazard or adversely affect other building areas or materials. Water-mist Sprinkling must not be used in the building interior.
- D. Unacceptable Equipment: Keep equipment that is not permitted for historic removal or dismantling work away from the vicinity where such work is being performed.
- E. Removing and Dismantling Items on or near Historic Surfaces:
 - 1. Use only dismantling tools and procedures within 12 inches of historic surface. Do not use pry bars. Protect historic surface from contact with or damage by tools.
 - 2. Unfasten items to be removed, in the opposite order from which they were installed.
 - 3. Support each item as it becomes loosened to prevent stress and damage to the historic surface.
 - 4. Dismantle anchorages.
- F. Masonry Walls:
 - 1. Remove masonry carefully and erect temporary bracing and supports as needed to prevent collapse of materials being removed.

2. Dismantle top edge and sides before removing wall. Stop removal work and immediately inform Architect if any structural elements above or adjacent to the work show signs of distress or dislocation during any phase of removal work.
 3. Remove wall in easily managed pieces.
 4. During removal, Contractor is responsible for the stability of the partially remaining wall. Notify Architect of the condition of temporary bracing for wall if work is temporarily stopped during the wall's removal.
- G. Loose Plaster: Identify loose, non-historic plaster and separate it from its substrate by tapping with a hammer and prying with a chisel or screwdriver. Do not use pry bars. Leave sound, firmly adhered plaster in place. Do not damage, remove, or dismantle historic plasterwork except where indicated or where it is an immediate hazard to personnel and as approved by Architect.
- H. Concrete Floor Surface Removal: Remove floor surfaces, fill, and topping, to the indicated lower elevations or cleavage planes as indicated on Drawings. Use dismantling methods when removing floor surfaces 12 inches or less away from historic walls. Take away material to a uniform surface at the indicated level.
- I. Anchorages:
1. Remove anchorages associated with removed items.
 2. Dismantle anchorages associated with dismantled items.
 3. In non-historic surfaces, patch holes created by anchorage removal or dismantling according to the requirements for new work.
 4. In historic surfaces, patch or repair holes created by anchorage removal or dismantling according to Section specific to the historic surface being patched.

3.9 HISTORIC TREATMENT SCHEDULE

- A. See attached plans for rooms and spaces requiring special care and treatment.

END OF SECTION 013591

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SECTION 014200 - REFERENCES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied

directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
- D. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association (The) www.aluminum.org	(703) 358-2960
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists www.aatcc.org	(919) 549-8141
ABAA	Air Barrier Association of America www.airbarrier.org	(866) 956-5888
ABMA	American Bearing Manufacturers Association	(202) 367-1155

	www.americanbearings.org	
ACI	American Concrete Institute www.concrete.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concretepipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association www.afandpa.org	(202) 463-2700
AGA	American Gas Association	(202) 824-7000
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AHRI	Air-Conditioning, Heating, and Refrigeration Institute (The) www.ahrinet.org	(703) 524-8800
AI	Asphalt Institute www.asphaltinstitute.org	(866) 540 9577
AIA	American Institute of Architects (The)	(800) 242-3837
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(253) 835-3344
ALSC	American Lumber Standard Committee, Incorporated	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association Official Seed Analyst www.aosaseed.com	(202) 870-2412

APA	Engineered Wood Association (The) www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	www.ari.org	
ARMA	Asphalt Roofing Manufacturers Association	(202) 207-0917
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)	
ASHRAE	www.ashrae.org	(404) 636-8400
ASME	ASME International www.asme.org	
ASSE	American Society of Sanitary Engineering	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International)	(610) 832-9500
ATIS	Alliance for Telecommunications Industry Solutions www.atis.org	(202) 628-6380
AWCMA	American Window Covering Manufacturers Association (Now WCMA)	
AWCI	www.awci.org	
AWI	Architectural Woodwork Institute	(571) 323-3636
AWPA	American Wood Protection Association (Formerly: American Wood Preservers' Association)	(205) 733-4077
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association	(800) 926-7337

	www.awwa.org	(303) 794-7711
BHMA	www.buildershardware.com	
BIA	Brick Industry Association (The)	(703) 620-0010
BICSI	BICSI, Inc. www.bicsi.org	(800) 242-7405 (813) 979-1991
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963
BISSC	Baking Industry Sanitation Standards Committee www.bissc.org	(866) 342-4772
CCC	www.carpetcushion.org	
CDA	Copper Development Association	(800) 232-3282
CEA	Canadian Electricity Association www.canelect.ca	(613) 230-9263
CEA	Consumer Electronics Association www.ce.org	(866) 858-1555 (703) 907-7600
CFFA	www.chemicalfabricsandfilm.com	
CGA	Compressed Gas Association	(703) 788-2700
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	www.cispi.org	
CLFMI	Chain Link Fence Manufacturers Institute	(301) 596-2583
CPA	Composite Panel Association www.pbmdf.com	(703) 724-1128
CRI	Carpet and Rug Institute (The)	(800) 882-8846

	www.carpet-rug.com	(706) 278-3176
CRRC	www.coolroofs.org	(510) 485-7175
CRSI	Concrete Reinforcing Steel Institute	(847) 517-1200
CRRC	Cool Roof Rating Council www.coolroofs.org	(847) 517-1200
CSA	Canadian Standards Association www.csa.ca	(800) 463-6727 (416) 747-4000
CSA	(Formerly: IAS - International Approval Services) www.csa-international.org	(416) 747-4000
CSI	www.csinet.org	(703) 684-0300
CSSB	Cedar Shake & Shingle Bureau	(604) 820-7700
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
ECA	Electrical Components Association www.ec-central.org	(703) 907-8024
EIA	www.eia.org	
EIMA	EIFS Industry Members Association	(800) 294-3462
EJCDC	Engineers Joint Contract Documents Committee http://content.asce.org/ejcdc/	(703) 295-6000
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	(Electrostatic Discharge Association) www.esda.org	
ETL SEMCO	(Formerly: ITS - Intertek Testing Service NA) www.intertek-etlsemko.com	
FIBA	(The International Basketball Federation) www.fiba.com	

FIVB	(The International Volleyball Federation)	
FM Approvals	www.fmglobal.com	
FM Global	FM Global www.fmglobal.com	(401) 275-3000
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.	(407) 671-3772
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council www.fsc.org	49 228 367 66 0
GA	www.gypsum.org	(301) 277-8686
GANA	Glass Association of North America	(785) 271-0208
GRI	(Part of GSI)	
GS	www.greenseal.org	
GSI	Geosynthetic Institute	(610) 522-8440
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
HI/GAMA	Hydronics Institute/Gas Appliance Manufacturers Association Division of Air-Conditioning, Heating, and Refrigeration Institute (AHRI) www.ahrinet.org	(908) 464-8200
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)	
HPVA	www.hpva.org	
HPW	H. P. White Laboratory, Inc.	(410) 838-6550
IAPSC	International Association of Professional Security Consultants www.iapsc.org	(515) 282-8192

ICBO	International Conference of Building Officials www.iccsafe.org	(888) 422-7233
ICEA	www.icea.net	
ICRI	International Concrete Repair Institute, Inc.	
ICPA	International Cast Polymer Association www.icpa-hq.org	
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	www.ieee.org	
IES	Illuminating Engineering Society of North America	(703) 525-0320
IENT	Institute of Environmental Sciences and Technology www.ient.org	(847) 255-1561
IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org	(613) 233-1510
ILI	www.iliai.com	
ISA	Instrumentation, Systems, and Automation Society, The	(919) 549-8411
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(877) 464-7732 (801) 341-7360
ITS	(Now ETL SEMCO)	
ITU	International Telecommunication Union	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LGSEA	Light Gauge Steel Engineers Association www.arcat.com	(202) 263-4488
LMA	(Now part of CPA)	

LPI	Lightning Protection Institute	(800) 488-6864
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MCA	Metal Construction Association www.metalconstruction.org	(847) 375-4718
MFMA	www.maplefloor.org	
MFMA	Metal Framing Manufacturers Association, Inc.	(312) 644-6610
MH	Material Handling (Now MHIA)	
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	www.marble-institute.com	
MPI	Master Painters Institute	(888) 674-8937
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(630) 942-6591
NACE	(National Association of Corrosion Engineers International) www.nace.org	(281) 228-6200
NADCA	www.nadca.com	
NAGWS	National Association for Girls and Women in Sport	(800) 213-7193, ext. 453
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCAA	www.ncaa.org	

NCMA	National Concrete Masonry Association	(703) 713-1900
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 222-2300
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	www.necanet.org	
NeLMA	Northeastern Lumber Manufacturers' Association	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	InterNational Electrical Testing Association www.netaworld.org	(888) 300-6382 (269) 488-6382
NFHS	www.nfhs.org	
NFPA	NFPA www.nfpa.org	(800) 344-3555
NFRC	National Fenestration Rating Council	(301) 589-1776
NGA	National Glass Association www.glass.org	(866) 342-5642 (703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	www.nlga.org	
NOFMA	NOFMA: The Wood Flooring Manufacturers Association www.nofma.org	(901) 526-5016
NOMMA	National Ornamental & Miscellaneous Metals Association	(888) 516-8585
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400

NSF	(National Sanitation Foundation International) www.nsf.org	(734) 769-8010
NSSGA	www.nssga.org	(703) 525-8788
NTMA	National Terrazzo & Mosaic Association, Inc. (The)	(800) 323-9736
NWFA	National Wood Flooring Association www.nwfa.org	(800) 422-4556 (636) 519-9663
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDI	www.pdionline.org	(978) 557-0720
PGI	PVC Geomembrane Institute	(217) 333-3929
PTI	Post-Tensioning Institute www.post-tensioning.org	(248) 848-3180
RCSC	Research Council on Structural Connections www.boltcouncil.org	
RFCI	www.rfci.com	(706) 882-3833
RIS	Redwood Inspection Service	
SAE	SAE International www.sae.org	(877) 606-7323 (724) 776-4841
SCAQMD	South Coast Air Quality Management District www.aqmd.com	(909) 396-2000
SCTE	www.scte.org	(610) 363-6888
SDI	Steel Deck Institute	(847) 458-4647
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association www.sefalabs.com	(877) 294-5424 (516) 294-5424
SEI/ASCE	(See ASCE)	

SIA	Security Industry Association	(866) 817-8888
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.smacentral.org	(561) 533-0991
SMACNA	National Association www.smacna.org	
SMPTE	www.smpte.org	
SOISTHP	The Secretary of the Interior's Standards for the Treatment of Historic Properties https://www.nps.gov/orgs/1739/secretary-standards-treatment-historic-properties.htm	
SPFA	Spray Polyurethane Foam Alliance www.sprayfoam.org	(800) 523-6154
SPIB	Southern Pine Inspection Bureau (The)	(850) 434-2611
SPRI	Single Ply Roofing Industry www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	www.sspc.org	(412) 281-2331
STI	Steel Tank Institute	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWPA	Submersible Wastewater Pump Association www.swpa.org	(847) 681-1868
TCA	www.tilt-up.org	
TCNA	Tile Council of North America, Inc.	(864) 646-8453
TEMA	Tubular Exchanger Manufacturers Association www.tema.org	(914) 332-0040

TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	www.masonrysociety.org	
TPI	Truss Plate Institute, Inc.	(703) 683-1010
TPI	Turfgrass Producers International www.turfgrassod.org	(800) 405-8873 (847) 649-5555
TRO	Tile Roofing Institute www.tilerroofing.org	(312) 670-4177
UL	www.ul.com	(847) 272-8800
UNI	Uni-Bell PVC Pipe Association	(972) 243-3902
USAV	USA Volleyball www.usavolleyball.org	(888) 786-5539 (719) 228-6800
USGBC	U.S. Green Building Council www.usgbc.org	(800) 795-1747
USITT	www.usitt.org	(315) 463-6463
WASTEC	Waste Equipment Technology Association	(800) 424-2869
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association www.wcmanet.org	(212) 297-2122
WDMA	(Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(312) 321-6802
WI	www.wicnet.org	
WMMPA	Wood Moulding & Millwork Producers Association	(800) 550-7889
WSRCA	Western States Roofing Contractors Association www.wsra.com	(800) 725-0333 (650) 570-5441
WWPA	Western Wood Products Association	(503) 224-3930

www.wwpa.org

- C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up to date as of the date of the Contract Documents.

DIN	www.din.de	
IAPMO	International Association of Plumbing and Mechanical Officials	(909) 472-4100
ICC	International Code Council www.iccsafe.org	(888) 422-7233
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543

- D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

COE	Army Corps of Engineers www.usace.army.mil	
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-7923
DOC	Department of Commerce www.commerce.gov	(202) 482-2000
DOD	Department of Defense http://dodssp.daps.dla.mil	(215) 697-6257
DOE	Department of Energy www.energy.gov	(202) 586-9220
EPA	Environmental Protection Agency	(202) 272-0167
FAA	Federal Aviation Administration www.faa.gov	(866) 835-5322

FCC	Federal Communications Commission www.fcc.gov	(888) 225-5322
FDA	www.fda.gov	
GSA	General Services Administration	(800) 488-3111
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
NCHRP	(See TRB)	
NIST	National Institute of Standards and Technology	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PBS	Public Buildings Service (See GSA)	
PHS	http://www.hhs.gov/ophs/	
RUS	Rural Utilities Service	(202) 720-9540
SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board http://gulliver.trb.org	(202) 334-2934
USDA	www.usda.gov	
UPS	U.S. Pharmacopeia	(800) 227-8772
USPS	Postal Service www.usps.com	(202) 268-2000

- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from U.S. Access Board www.access-board.gov	(202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office www.gpoaccess.gov/cfr/index.html	(866) 512-1800 (202) 512-1800
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	
FS	Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil/ www.dsp.dla.mil Available from General Services Administration Available from National Institute of Building Sciences www.wbdg.org/ccb	 (202) 619-8925 (202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
MIL		
MIL-STD	(See MILSPEC)	
MILSPEC	Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	
UFAS	milAvailable from Access Board www.access-board.gov	(202) 272-0080

- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following

list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CBHF	www.dca.ca.gov/bhfti	(916) 574-2041
CCR	California Code of Regulations	(916) 323-6815
CDHS	California Department of Health Services www.dhcs.ca.gov	(916) 445-4171
CDPH	California Department of Public Health, Indoor Air Quality Section www.cal-iaq.org	
CPUC	www.cpuc.ca.gov	
TFS	Texas Forest Service http://txforestsERVICE.tamu.edu	

PART 2 – PRODUCTS: NOT USED

PART 3 – EXECUTION: NOT USED

END OF SECTION

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SECTION 01 43 00 - QUALITY ASSURANCE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.

1.2 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Director's Representative.
- C. Mockups: Full-size, physical example assemblies to illustrate finishes and materials. Mockups are used to verify selections made under Sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples.
- D. Inspection and Testing Agency (ITA): An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.3 CONTRACTOR'S REQUIREMENTS

- A. The Contractor shall establish and maintain a Quality Assurance program to insure adherence to the minimum standards of workmanship required by these Specifications.
- B. The Contractor shall insure that all laborers and mechanics, including those of any Subcontractor, performing the Work of this Contract possess the necessary skills and experience to accomplish the Work in accordance with the specified minimum performance standards.
- C. No adjustment in the Contractor's bid price will be allowed due the rejection of any Subcontractor or personnel that fail to demonstrate the minimum qualifications specified in the Specifications.

D. Project Manager and Site Superintendent

1. The Contractor shall engage and retain a Project Manager and Site Superintendent who shall be responsible for insuring compliance with all quality assurance requirements of the Work of this Contract.
2. The Project Manager and Site Superintendent shall have satisfactory experience in similar projects and must be fluent in English.
3. Substitution of the approved Project Manager or the Site Superintendent requires prior written approval from the Director's Representative upon submission of satisfactory evidence of qualifications and experience.
4. The Project Manager or the Site Superintendent shall regularly inspect the Work of this Contract to insure continued compliance with quality assurance requirements.
5. The Site Superintendent shall be present when work is in progress.

E. Personnel:

1. All work shall be performed by skilled workers.
2. At least one (1) skilled foreman shall be present at all times.
3. The job foreman must be fluent in English.

F. In the acceptance or rejection of the Work of this Contract, no allowance will be made for lack of skill on the part of any worker.

1.4 QUALITY CONTROL

A. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services as required by applicable codes, specifications, regulations, and the NYS OPRHP Code Enforcement Official.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
2. Contractor shall not employ the same entity engaged by NYS OPRHP, unless agreed to in writing by NYS OPRHP.
3. Notify testing agencies at least **24** hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to the NYS OPRHP Code Enforcement Official, when they so direct.

B. Re-testing/Re-inspection: Contractor shall be responsible for re-testing and re-inspection of revised or replaced work due to failure to comply with requirements of the Contract Documents.

C. ITA Responsibilities: Cooperate with Director's Representative and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Director's Representative and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 3. Submit a certified written report of each test, inspection, and similar quality-control service through Contractor.
 4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
 5. Do not perform any duties of Contractor.
- D. Other Testing and Inspection Providers: Contractor shall cooperate with other testing agencies performing required tests, inspections, and similar quality-control services, and provide reasonable assistance as requested. Notify NYS OPRHP sufficiently in advance, to permit scheduling of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field-curing of test samples.
 5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 6. Security and protection for samples and for testing and inspecting equipment at Project site.
- E. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.5 QA/QC SUBMITTALS

- A. Submit the Following for this project:
- B. Quality Assurance Program: In addition to requirements highlighted elsewhere, Contractor shall submit a program description describing how they will assure quality workmanship throughout the duration of the project.
1. Provide the following:
 - a. A narrative describing the program strategy.
 - b. Any testing agencies to be employed shall be identified including a general description of anticipated inspections.
 - c. A list of key personnel to be employed on the project. Include a resume indicating the relevant experience of these persons for each of the following:
 - 1) Project Manager
 - 2) Site Superintendent
 - 3) Project Foreman
 - d. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
 - e. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this

- Project, whose work has resulted in construction with a record of successful in-service performance.
- f. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
 - g. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing Engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.
 - h. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services
 - i. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1) Requirement for specialists shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.
 - j. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, and that specializes in types of tests and inspections to be performed. Each testing agency shall be authorized by the authorities having jurisdiction in the state in which the project is located.
 - 1) Preconstruction Testing: Testing agency shall perform preconstruction testing for compliance with specified requirements for performance and test methods.
 - 2) Contractor responsibilities include the following:
 - a) Provide test specimens and assemblies representative of proposed materials and construction. Provide sizes and configurations of assemblies to adequately demonstrate capability of product to comply with performance requirements.
 - b) Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c) Fabricate and install test assemblies using installers who will perform the same tasks for Project.
 - d) When testing is complete, remove assemblies; do not reuse materials on Project.
 - k. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
 - l. Reports: Prepare and submit certified written reports, that include the following:
 - 1) Date of issue.

- 2) Project title and number.
- 3) Name, address, and telephone number of testing agency.
- 4) Dates and locations of samples and tests or inspections.
- 5) Names of individuals making tests and inspections.
- 6) Description of the Work and test and inspection method.
- 7) Identification of product and Specification Section.
- 8) Complete test or inspection data.
- 9) Test and inspection results and an interpretation of test results.
- 10) Ambient conditions at time of sample taking and testing and inspecting.
- 11) Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
- 12) Name and signature of laboratory inspector.
- 13) Recommendations on re-testing and re-inspecting.

m. Permits, Licenses, and Certificates: For NYS OPRHP's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

- A. Build mockups in location and of size indicated or, if not indicated, as directed by Director's Representative.
- B. Notify Director's Representative **two** days in advance of dates and times when mockups will be constructed.
- C. Demonstrate the proposed range of aesthetic effects and workmanship.
- D. Obtain Director's Representative's approval of mockups before starting work, fabrication, or construction.
- E. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

1.7 INSPECTIONS AND TESTS

- A. Contractor shall coordinate and schedule inspections and tests with the Inspection and Testing Agency (ITA) at various stages and at completion of the Contract as required by all applicable codes, specifications, regulations, and the NYS OPRHP Code Enforcement Official.
- B. Contractor shall schedule inspections and tests by contacting the ITA at appropriate time in advance of needed inspection.

- C. In the event the inspection must be cancelled, the GCC shall contact both the ITA and the Director's Representative.
 - 1. Cancellation must be made according to the ITA requirements.
 - 2. If cancellation is not provided as required above, any fees or charges assessed to NYS OPRHP may be back-charged to the responsible Contractor.
- D. NYS OPRHP shall have direct communication with the ITA in the event questions arise about required tests.
- E. Contractor shall provide and pay for each inspection test required.
- F. Refer to Special Inspections schedule on G-001
- G. Building inspections and tests related to plumbing, mechanical and HVAC systems shall be witnessed by the NYS OPRHP Code Enforcement Official or their appointed designee. Contractors are required to coordinate and schedule these inspections and tests with the NYS OPRHP Code Enforcement Official.
- H. Approved Third Party Electrical Inspection(s) shall be provided and paid for by the Electrical Contractor. Important: Electrical Contractor shall provide copy of all electrical inspection reports to the NYS OPRHP Code Enforcement Official or their appointed designee.
- I. All Contractors shall coordinate utility connection inspections with appropriate authorities. Contractor shall bear the costs (if any) for such inspections.
 - 1) Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - (a) Specification Section number and title.
 - (b) Description of test and inspection.
 - (c) Identification of applicable standards.
 - (d) Identification of test and inspection methods.
 - (e) Number of tests and inspections required.
 - (f) Time schedule or time span for tests and inspections.
 - (g) Entity responsible for performing tests and inspections.
 - (h) Requirements for obtaining samples.
 - (i) Unique characteristics of each quality-control service.
 - (j) Distribute schedule to Director's Representative, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 - PRODUCTS – Not Used

PART 3 - EXECUTION – Not Used

END OF SECTION

SECTION 014500 - QUALITY ASSURANCE: STRUCTURAL TESTING AND INSPECTION

PART 1 - GENERAL

1.1 GENERAL

- A. Quality assurance is testing and inspection to assist the Owner in evaluating the Contractor's performance and quality control in the fabrication shop and field. It is not a substitute for the testing and inspection which is required as part of the Contractor's quality control program.
- B. Cost: Except as specifically noted otherwise, the testing agency for quality assurance shall be engaged and paid for by the Contractor.
- C. Definitions:
 - 1. See Sections 033000
 - 2. The term "Testing Agency" in this Specification section is defined as an independent testing and inspection service engaged by the Owner for quality assurance testing and inspection of structural construction in accordance with applicable building code provisions and any additional activities listed in the Contract Documents.
 - 3. The term "Geotechnical Engineer" in this Specification section is defined as an independent geotechnical engineering service engaged by the Owner for quality assurance testing and inspection of the actual soil conditions to verify compliance with the geotechnical conditions, recommendations and design values described in the Project Geotechnical Report and used as the basis of design for the most current Contract Documents.

1.2 SCOPE

- A. Testing Agency shall provide qualified personnel at the site to test and inspect materials installed by and work performed by the Contractor, for the following structural items as indicated in Part 3 of this Specification section:
 - 1. Section 031000 Concrete Formwork
 - 2. Section 032000 Concrete Reinforcement
 - 3. Section 033000 Cast-In-Place Concrete
 - 4. Section 316100 Footings
- B. Refer to the drawings for Special Inspections requirements for the Project. The Special Inspections shown on the drawings may contain additional testing and inspection that is not listed in this specification section.

1.3 TESTING AGENCY QUALIFICATIONS

- A. Testing Agency shall be an independent agency with the experience and capability to conduct testing, inspection and sampling as indicated in accordance with ASTM E 329.

- B. Testing Agency shall be an agency approved by the local building official to perform Special Inspections and other related services as outlined in the governing project Building Code.
- C. Testing, inspection, and sampling shall be done in accordance with the applicable ASTM standards.

1.4 TESTING AGENCY RESPONSIBILITIES

- A. Provide qualified personnel at the site to test and inspect structural construction as the work progresses using the most current Contract Documents and approved shop drawings.
- B. Provide additional testing and inspection as needed due to the following:
 - 1. Work performed contrary to Drawings and Specifications
 - 2. Work performed with improper supervision
 - 3. Work performed without prior notice
- C. Report deficiencies to Contractor, Owner, Design Professionals within 24 hours.
- D. Rejection: The Testing Agency has the right to reject any material at any time, when it is determined that the material or workmanship does not conform to the Contract Documents and shall immediately notify the Owner, Design Professionals, and Contractor of deficiencies. Failure to detect any defective work or material shall not prevent later rejection when such a defect is discovered nor shall it obligate Design Professionals for final acceptance.
- E. Noncompliance Log: Indicate to the Contractor where remedial work must be performed and maintain a current log of work not in compliance with the Contract Documents. This noncompliance log shall be submitted to the Design Professionals and Owner on a weekly basis.
- F. Reports: Prepare daily inspection, observation, and/or test reports as required herein and provide an evaluation statement in each report stating whether or not the work conforms to requirements of Specifications and Drawings and shall specifically note deviations from them. The daily reports shall be collected and submitted for record to the Design Professionals and Owner weekly.
- G. Certification: Upon completion of work and resolution of remedial items, certify in a letter to the Design Professionals and Owner, that the installation is in accordance with the requirements of the Drawings and Specifications.

1.5 CONTRACTOR RESPONSIBILITIES

- A. The Contractor shall have sole responsibility for coordinating their work with the Testing Agency to assure that all test and inspection procedures required by the Contract Documents and Public Agencies are provided. The Contractor shall cooperate fully with the Testing Agency in the performance of their work and shall provide the following:
 - 1. Information as to time and place of starting shop fabrication and field construction/erection, at least one week prior to the beginning of the work.

2. The most up to date construction schedule.
 3. At least 24 hours advance notice of work requiring testing and inspection.
 4. Access to areas as required for testing and inspection.
 5. Site File: At least one copy of the most current Contract Documents and approved shop drawings shall be kept available in the contractor's field office. Drawings not bearing evidence of approval and release for construction by the Design Professionals shall not be kept on the job. Provide drawings for the work to be performed in the shop or field one week prior to the start of work.
 6. Representative material samples requested by the Testing Agency for testing, if necessary.
 7. Full and ample means of assistance for testing and inspection of material.
 8. Facilities for proper storage of material samples as required.
 9. Proper facilities, including scaffolding, temporary work platforms, safety equipment etc., for inspection of the work in shop and field.
- B. Immediately notify the Owner's Testing Agency and Design Professionals in writing of conditions that will adversely affect the work.
- C. Materials and installed work may require testing and retesting at any time during progress of work, as directed by Design Professionals. Tests, including retesting of rejected materials for installed work will be done at Contractor's expense.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

- A. Testing Agency shall provide qualified personnel at site to test and inspect structural construction using the latest Contract Documents and approved submittals as indicated in the following sections.

3.2 CONCRETE FORMWORK

- A. Quality Assurance:
1. Prior to placement of reinforcement, inspect formwork for grade, quality of material, absence of foreign matter, and other imperfections that might affect concrete placement and tolerances stated herein.
 2. Inspect formwork for shape, location and dimensions of the concrete member being formed.
 3. Inspect formwork for compliance with specified tolerances, block outs, camber, shoring ties and seal of form joints.
 4. Verify condition of bond surfaces, locations and sizes of all accessories, embedment items, and anchorage for prevention of displacement.
 5. Verify proper use/application of form release agents.
 6. Verify in-situ concrete strength meets requirements for formwork removal in specification section 031000 prior to removal of shores and formwork from beams and structural slabs.

7. Inspect concrete surfaces immediately after removal of formwork and prior to any patching or repair work.

3.3 CONCRETE REINFORCEMENT AND EMBEDDED ITEMS

A. Quality Assurance:

1. Prior to placement, inspect reinforcement and embeds for grade, quality of material, absence of foreign matter, and for suitable storage.
2. Provide continuous inspection of reinforcement and embedded assemblies during placement and immediately prior to concreting operations for: size, quantity, vertical and horizontal spacing and location, correctness of bends and splices, mechanical splices, clearances, compliance with specified tolerances, security of supports and ties, concrete cover, and absence of foreign matter.
3. Inspect epoxy-coated reinforcement for coating damage and required applied coatings.
4. Provide continuous inspection of adhesive anchors installed in horizontal or upwardly inclined orientations and those marked (CERT) on the latest Drawings.

3.4 CAST-IN-PLACE CONCRETE

A. Quality Assurance:

1. Monitor concrete placement as follows:
 - a) Verify use of required design mix
 - b) Record location of point of concrete discharge of each batch truck tested, cross referenced to grid lines.
 - c) Record temperature of concrete at time of placement.
 - d) Record weather conditions at time of placement, including temperature, wind speed, relative humidity, and precipitation.
 - e) Record types and amounts of admixtures added to concrete at the project site.
 - f) Record amount of water added at the site and verify that total water content does not exceed amount specified in the mix design. Addition of water at the site is subject to prior approval by the Design Professional.
 - g) Monitor consistency and uniformity of concrete.
 - h) Monitor preparation for concreting operations, placement of concrete, and subsequent curing period for conformance with Specifications for following procedures:
 - i. Concrete curing.
 - ii. Hot weather concreting operations.
 - iii. Cold weather concreting operations.
2. Conduct tests of concrete as follows and in accordance with ASTM C 1077:
 - a) Testing frequency: Sample sets for all tests listed below of each concrete design mix placed each day shall be taken not less than once a day, nor less than once for each 50 cubic yards, nor less than once for each 2500 square feet of surface area for slabs or walls. Additional tests shall be

- performed if deemed necessary by the Owner's Testing Agency and Design Professionals. In addition, sample each truckload used for columns, regardless of other frequencies listed above.
- b) Obtain each test sample from different batches selected on a strictly random basis before commencement of concrete placement. Record location in structure of sampled concrete.
 - c) Determine air content of normalweight concrete in accordance with either ASTM C 231 or ASTM C 138. Determine air content of lightweight concrete in accordance with ASTM C 173. Conduct one test for air content for each strength test required or for every 50 cubic yards (40 cubic meters) of fly ash concrete placed, whichever is less.
 - d) Determine unit weight of lightweight concrete in accordance with ASTM C 567.
 - e) Test water content of freshly mixed concrete on a random basis, a minimum of once per 100 cubic yards (75 cubic meters) or every 5000 square feet (500 square meters) of concrete placement, during placement in accordance with AASHTO T 318 for the following concrete types:
 - i. Hard troweled slabs exposed to view
 - ii. Slab to receive a bonded finish floor material
 - iii. Slabs with specified concrete compressive strength exceeding 6000 psi (42MPa)
 - f) Conduct slump tests in accordance with ASTM C 143.
 - g) Slump indicated in mix designs shall be achieved at point of placement. Correlation between slump at point of initial discharge from truck and point of placement must be established to determine amount of slump loss which occurs between initial discharge and point of placement. Adjustment may be necessary to achieve slump indicated in mix designs at point of placement.
 - h) Conduct strength tests of concrete as follows:
 - i. Secure sample sets in accordance with ASTM C 172.
 - ii. Mold cylinders in accordance with ASTM C 31 and cure under standard moisture and temperature conditions in accordance with ASTM C 31, Section 7 (a). Quantity of cylinders listed below is based on a cylinder size of 4 inch (100mm) diameter x 8 inches (200mm) long. If 6 inch (150mm) diameter by 12 inch (300mm) long cylinders are used, the total quantity of cylinders may be reduced by one with two cylinders instead of three tested at the age designated for determination of f'_c .
 - iii. Test cylinders in accordance with ASTM C 39. For specified concrete strength of 10,000 psi (70MPa) and above, cylinders shall be ground and not capped.
 - iv. For 28 day mixes mold six cylinders. Test two cylinders at seven days and three cylinders at 28 days. The 28 day strength shall be the average of the three 28 day cylinders. One cylinder shall be retained in reserve for later testing if required.
 - v. When early age concrete strength verification is required by the Contractor for formwork removal or stressing of post-tensioning

- tendons, strength shall be verified, at the Contractor's expense, by additional compression tests of field-cured cylinders or by the maturity method in accordance with ASTM C1074.
- vi. If one cylinder in a test manifests evidence of improper sampling, molding or other damage, discard cylinder and base test results on that of remaining cylinder.
3. Evaluate concrete for conformance with Specifications as follows:
- a) Slump
- b) Strength test:
- i. Maintain a compressive strength moving average, comprised of three (3) consecutive strength test results, for each mix design used in work.
- ii. Strength level of concrete will be considered satisfactory provided averages of all sets of three (3) consecutive strength test results (i.e. moving average) equal or exceed specified 28-day strength, and no individual strength test result falls below specified 28-day strength by more than 500 psi (3.5MPa).
- iii. If strength tests fail to meet minimum requirements, concrete represented by such tests shall be considered questionable and shall, if deemed appropriate by the SER, be subject to further evaluation by core testing as specified herein or other testing methods.
- iv. Maintain a log that contains the results of all concrete strength tests. The log shall include the results of each test performed, be in electronic spreadsheet format, and updated and submitted along with concrete test data. See example log attached at the end of this Specification Section.
- c) Conduct core tests on questionable concrete in accordance with ACI 318 and ASTM C 42.
- i. Location of cores shall be coordinated with Design Professionals so as to least impair strength of structure. Before testing cores, discard and replace any that show evidence of having been damaged subsequent to or during removal from structure or which have reinforcement present.
- ii. Cores from structure exposed to soil or constant moisture in service (e.g. basement walls, retaining walls, slab-on-grade, piers, footings, etc.) shall be tested in a fully saturated condition. Cores for all other concrete may be tested dry. Prior to commencement of coring, verify with Design Professionals whether cores are to be tested wet or dry.
- iii. Fill core holes with low slump concrete or mortar with a strength equal to or greater than that specified for area cored.
- d) Concrete in area represented by core test will be considered adequate if average strength of cores is equal to at least 85% of, and if no single core is less than 75% of specified strength.

EXAMPLE CONCRETE STRENGTH SPREADSHEET LOG

PROJECT:
DATE:
ARCHITECT:
STRUCTURAL ENGINEER:

SPECIMEN I.D.	TICKET NUMBER	PLACEMENT LOCATION	MIX I.D.	CURE TYPE*	DATE TESTED	AGE AT TEST (DAYS)	AVERAGE DIAMETER (IN)	AVERAGE CROSS-SECTIONAL AREA (IN ²)	BREAKING LOAD (LB)	BREAK TYPE **	AVERAGE COMPRESSIVE STRENGTH (PSI)
S0002	1234	First Floor Slabs and Beams	H3651	I, CA, CB	3/8/2106	7	4	12.56	165990	Type 1	13210
						14					
						28					
						56					

*FIELD CURING CONDITIONS: NCB=NO CURING BOX, CB=CURING BOX, I=INSULATED, CO=COOLED, HE=HEATED, CA=CAPPED, IC=ICED, O=OTHER

**BREAK TYPES (AS CLASSIFIED BY ASTM C39):



3.5 FOOTINGS

- A. Quality Assurance by Geotechnical Engineer (or Testing Agency if the same entity):
1. Review Contractor's proposed footing installation methods, sequences, and procedures.
 2. Verify bearing stratum and bearing capacity of each footing; verify levelness of footing end bearing surface.
 3. Determine final bearing elevation at each footing location.
 4. Observe, record, and report footing as-built plan location, footing size and final elevations of bottom (where possible) and top of completed footings.
 5. Coordinate with Testing Agency.
- B. Quality Assurance by Testing Agency:
1. Inspection of Reinforcement: Provide continuous visual inspection of site fabrication. Record the steel reinforcement bar sizes, grade, length, and number of bars.
 2. Inspection of Concrete and Reinforcement Placement: Provide continuous visual inspection of installation of reinforcement and concrete placement including verification of laitance removal at top of footings.
 3. Check ready mix delivery tickets for correct concrete mix design number. Record batch to placement time. Check slump, temperature, and batch to placement time for each set.
 4. Slump Tests: ASTM C143. Make one test from each truck.
 5. Concrete Compressive Strength Tests: Testing agency will take a minimum of one sample set of concrete cylinders per 20 cubic yards of concrete. See CAST-IN-PLACE CONCRETE section of this specification for requirements. Cure cylinders to simulate same curing conditions as concrete in footings. Reports of cylinder tests shall state footing location(s), laboratory or site curing, compression strength, type of fracture, age at testing, concrete supplier, mix specification strength, any other pertinent information, test results, and conclusions.
 6. Additional Tests: Perform additional testing if, in the opinion of the Design Professionals, concrete of poor quality has been placed based on cylinder strengths below Specification requirements or visual defects. Tests may be compression tests on cored cylinders, ASTM C42, and load tests as outlined in ACI 318, or as directed by the Design Professionals. Complete continuous coring of footings will be required, at Contractor's expense, where verification of quality of concrete is not otherwise attainable.

END OF SECTION

SECTION 01 50 00 - TEMPORARY CONSTRUCTION, FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 TEMPORARY UTILITIES/ SERVICES AND PROTECTION

A. TEMPORARY LIGHT AND POWER – General Construction Contractor

1. Electrical energy will be provided by the NYS OPRHP at existing location(s) at no charge to the Contractor to the extent that the existing system can safely supply. Electrical energy distribution within the construction site will be provided by the Contractor, including any temporary panels or switchgear.
2. Provide supplemental portable source of electricity as needed for temporary light and power of adequate capacity to supply the needs of all contractors for the performance of their Work until the permanent electrical service can be utilized for temporary light and power.
3. Provide wiring and other equipment within the building for temporary light and power.
4. Install materials for temporary light and power in conformance with the National Electrical Code.
5. Provide lamps and fuses including replacements required.
6. Temporary light shall be provided through energy efficient means including, LED, compact fluorescent and metal halide bulb technology.
7. Make necessary arrangements, through the Director's Representative, for temporary electric service as directed by Director's Representative in field.
8. Any Contractor requiring additional lighting shall provide additional fixtures, but in no case shall the load on any branch circuit or feeder exceed its rated capacity.
9. Provide ground-fault protection for personnel (such as portable plug-in type ground-fault circuit-interrupters) on single phase 15 and 20 ampere receptacle outlets which are in use.
10. Receptacle outlets, portable cord connectors and attachment plugs shall have standard NEMA configurations.
11. As the progress of the Work allows, and as approved, completed portions of the permanent wiring and electrical service may be utilized for temporary light and power.
12. Temporary shut down or interruption of branch circuits and electrical switchgear for execution of the work shall be coordinated with the Site Manager.

B. TEMPORARY SPACE HEAT (If needed) – <General Construction Contractor>

1. Permanent building system may not be used until the project has reached Substantial Completion as approved by the Code Enforcement Official.
2. General Construction Contractor (GCC or GC) shall maintain a minimum building space temperature of 50-55 degrees once the building envelope is established. Heating equipment use shall comply with OSHA and other applicable codes and regulations.

C. TEMPORARY TOILETS – General Construction Contractor

1. Contractor shall provide toilet facilities for Contractor's and subcontractors' employees engaged on the Project, including employees of other contractors. Locate toilets where directed and maintain them in a sanitary condition.
2. Locate toilet facilities no more than 500 feet from any work location.

NUMBER OF EMPLOYEES	MINIMUM NUMBER OF FACILITIES*
20 or less	1 toilet
20 or more	1 toilet and 1 urinal per 40 employees
200 or more	1 toilet and 1 urinal per 50 employees

*Toilet/Urinal Combinations shall count as only one facility.

D. TEMPORARY WATER – General Construction Contractor

1. Water will be made available for the Work without charge “as is” at source or sources directed within the limits of the existing supply and usage.
 - a. Provide and maintain a temporary water system, of such size and capacity as to adequately supply the needs of all contractors during performance of their Work.
2. Maintain temporary water lines during construction in proper working order. Repair damages caused by installation of leaky, defective or broken piping, connections or other fittings.

E. SNOW AND ICE REMOVAL AND CONTROLS (If needed) - General Construction Contractor

1. Site will be kept clear of snow and ice to provide safe working conditions during construction. This applies to areas required for walking, working, staging, storage, parking, exit routes, etc.

1.2 MISUSE OF UTILITIES

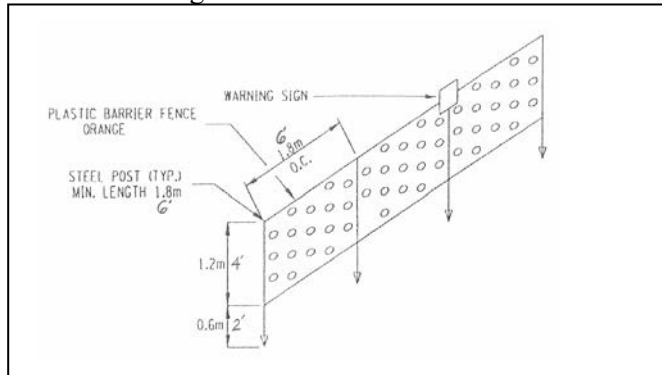
- A. Contractors will make reasonable efforts not to waste utilities provided. E.g., water must be turned off when not in use. Should the Contractor repeatedly misuse utilities provided, the Office may prohibit such use and the Contractor must provide utilities at their own expense and at no charge to the State.

1.3 TEMPORARY FENCE – CONSTRUCTION/ TREE BARRIER – General Construction Contractor

- A. This work shall consist of furnishing, installing, and maintaining construction/tree protection barrier fence of the type and at the locations shown in the plans or where directed by the Director’s Representative.
- B. The construction/tree protection barrier fence shall be erected prior to moving construction equipment onto any site where the trees or vegetation designated for protection are located, as shown on plans or where directed by the Engineer.
- C. Maintain the temporary fence enclosure throughout the life of the Contract, or until directed to be removed. Maintenance shall commence immediately after erection of the tree/vegetation protection barrier and continue until one week prior to acceptance of the contract. The barrier shall not be temporarily removed to allow equipment access over a protected area, except as required for items of work specifically shown on the plans and approved by the Director’s

Representative in writing. Maintenance shall consist of replacing damaged or destroyed post(s) and fencing, and tightening fencing.

- D. Maintain adequate access for vehicle and worker access.
- E. Construction Fence (On Paved Areas):
 - 1. Type: Galvanized Chain-link Fence
 - 2. Top Rail: Yes
 - 3. Mid-Rail: Optional
 - 4. Height: 6'-0" Min.
 - 5. Mounting: Self Standing Ground Bracket/ Stabilizer
 - 6. Gates: As required by General Construction Contract
- F. Construction/ Tree Protection Fence in Earthen/ Vegetated Areas :
 - 1. See Landscape Drawings.
- G. Installation Diagram:



1.4 BARRIERS

- A. Erect and maintain temporary barriers or guardrails as necessary to maintain a safe work site in compliance with OSHA, and the local Code Enforcement Official.

1.5 PROJECT IDENTIFICATION SIGN

- A. Provide signs as indicated below. Unauthorized signs are not permitted.
 - 1. Project signage: Provide (2) Project identification signs. OPRHP will provide text and graphics in a compatible digital file as directed by the Contractor's sign fabricator. Sign size will be 4'-0" x 8'-0". Signs shall be printed on vinyl with weather resistant ink. Vinyl sign shall be mounted on 3/4" x 4'-0" x 8'-0" sign board or printed corrugated plastic and affixed to the construction fencing at a location determined by the Director's Representative.

1.6 SAFETY SIGNS

- A. Provide site safety signs as required by OSHA or other codes and regulations.
- B. Properly spaced signs shall be posted on construction fence indicating the area is “Restricted - Authorized Personnel Only” as required by the Director’s Representative, but at no more than 100 feet. Signs shall be 16” by 24” with 4” black letters on a white background.
- C. Additional Signs shall be provided as deemed necessary by the Director’s Representative.

1.7 RUBBISH REMOVAL

- A. General Construction Contractor is responsible for their waste removal and disposal from the Site.
- B. Clean up the debris resulting from the work at the end of each day.
- C. Remove debris from State property as the refuse container(s) becomes full or if the debris presents a hazard. Burning of waste material is prohibited.
- D. Properly and legally dispose of all waste materials.
- E. Recycle materials whenever possible.
- F. Maintain drop cloths to catch and collect debris from removal of existing materials and application of new materials (paint, caulk, mortar, etc.).

1.8 REMOVAL OF TEMPORARY WORK/ EQUIPMENT

- A. Removal of temporary work such as electric power and light system, water piping, hoses, guards, shoring, fences, etc., provided or erected by each Contractor, shall be removed and shall become property of the Contractor, except where otherwise noted, when such temporary work is no longer required, or when directed, or at completion of Contract.

1.9 FIRE PREVENTION

- A. Take precautions necessary to prevent fires.
- B. Fuel for cutting and heating torches shall be acetylene or LP-gas only, and shall be contained in Underwriters Laboratory or Federal Department of Transportation approved containers.
 - 1. All soldering work shall require a “Hot Work” Permit issued by the Director’s Representative prior to commencement of soldering work, on a form provided by Parks. Permit shall indicate area of work and day for which it is valid.
 - 2. All soldering and cutting using heating torches must cease at least one (1) hour prior to the end of a work shift to perform a “fire watch”.
 - 3. Welding inside the existing facilities is *strictly prohibited*. All steel components must be welded and pre-assembled outside the structure.

- C. Furnish and maintain a currently inspected 20 pound capacity multi-class ABC fire extinguisher in the immediate vicinity where welding tools or torches are in use. Provide additional fire extinguishers as required by the Director's Representative, Code Enforcement Official, and the NYS Building Code.
- D. Keep flammable materials enclosed in safe containers, provide fire extinguishers of proper size, capacity and type in quickly accessible locations at all times.

1.10 TEMPORARY SCAFFOLDS, STAGINGS, AND SAFETY DEVICES:

- A. Each Contractor shall erect, provide, maintain, and remove when directed, all scaffolding, temporary enclosure of roof opening(s), staging, platforms, temporary runways, guards, railings, etc., as required by state codes, or laws for the protection of workmen and public. Construction, inspection, and maintenance of above items shall comply with OSHA requirements, safety codes and regulations as applicable to work.
- B. Trench boxes or other methods should be employed during excavation procedures where required by OSHA.

1.11 CUTTING AND PATCHING

- A. Each Contractor shall do all cutting, drilling, and patching as required for their Work as defined in each contract. Exceptions are noted below. Cutting, drilling, and patching shall be done in a manner which will not weaken the structures and which will retain the integrity of any existing protection. All cutting of concrete, asphalt and other paved areas shall be accomplished by saw-cutting in such a manner to permit neat and proper patching to adjacent areas. See also Sections 024119 Selective Demolition and Alternation Work, and 020342 Removal and Salvage of Historic Construction Materials.
- B. Areas of cutting and patching may be required to be larger sections of walls, floors, etc. In these cases, each Contractor shall do all cutting, drilling, and patching as required for their Work as defined in each contract. Workmanship of patched construction shall match the existing adjacent construction remaining, or shall patch as indicated in the plans, or as directed by the Architect or Engineer.
- C. Chases: It shall be the General Construction Contractor's responsibility to coordinate their work and cooperate with subcontractors in order to insure provision of chases, recesses, and openings in building walls and floors; and to insure that reasonable clearances between the work of various trades be maintained while proper structural stability is maintained throughout. Should any chases or similar provisions be omitted, the General Construction Contractor shall do all the work necessary to provide same despite interference with finished work in place. The architectural lines shown on the drawings shall be maintained. There shall be no projections into spaces unless shown on drawings.
 - 1. Contractors shall make every reasonable effort to use existing chases, cavities and penetrations in such a manner that minimizes damage to historic building finishes and structural fabric.
 - 2. Drawings provide general layouts for removal of existing finishes. It is the intent of these documents to place multiple systems in the same openings and chases to minimize damage

to historic building fabric. Some minor adjustments in location and routing may be required.

- D. The General Construction Contractor shall confirm that all work of all trades which will be buried or made otherwise inaccessible by his work, is approved by the Code Enforcement Officials or Inspectors before proceeding with that part of his work which renders the other work inaccessible.

1.12 STORAGE AND SHOP FACILITIES

- A. The Contractor shall make provisions necessary for safe and secure equipment and material storage and enclosed workspaces. The Office assumes no liability for loss or damage to materials or equipment.

1.13 PROTECTION OF EXISTING CONSTRUCTION

- A. Protect existing construction during the work. Erect temporary protection to keep water out of the structure where walls, roofs, etc. have been opened up or removed.
- B. Contractor shall be responsible for adequately bracing and protecting all work during construction against damage, leakage, collapse, distortions, misalignments, etc., in accordance with codes and standards of good practice. Contractor is responsible for the structural stability, shoring, underpinning of adjacent properties and structures as per codes and standards of good practice.

1.14 SITE ACCESS

- A. Parking for all Contractors, employees, or sub-contractors will be designated by the Director's Representative.
- B. Store materials and perform work so that pedestrian and vehicular traffic is not obstructed.

PART 2 - The Historic Site will be CLOSED to the public, but open to OPRHP staff, construction management and construction inspectors with prior approval and coordination by Directors Representative. PRODUCTS

2.1 Not used.

PART 3 - EXECUTION

3.1 Not used.

END OF SECTION

SECTION 015213 – OWNER’S AND CONSTRUCTION MANAGER’S FIELD OFFICE

PART 1 - GENERAL

1.1. DESCRIPTION

A. Scope:

1. This Section includes requirements for CONTRACTOR-provided field office, with furnishings, equipment, and consumables, for use by ARCADIS and PARKS.
2. GC shall provide and maintain one (1) field office for ARCADIS’s sole use. Provide field office at location shown on the Drawings and as approved by ARCADIS, in reasonable proximity to CONTRACTOR’s field office.
3. GC shall provide and maintain one (1) field office for PARKS’ sole use. Provide field office at location shown on the Drawings and as approved by PARKS, in reasonable proximity to ARCADIS’s field office.
4. Both field offices shall be complete and fully functional within 30 days after date on which the Contract Times commence running.
5. Obtain required permits for field offices.

1.2. SUBMITTALS

A. Action Submittals: Obtain approval of the following prior to staging field office to the Site:

1. Field Office Submittal: Submit all of the following as one submittal which shall include:
 - a. Site plan indicating proposed location of field offices, parking for field office, facilities related to the field office, and material of both field office parking and sidewalk or walkway to field office.
 - b. Information on proposed field office size, construction, exterior appearance, interior finishes, and field office security measures.
 - c. Proposed layout of field office interior, showing location of offices, common areas, restroom, closet, other areas specified (if any), with dimensions indicated for each.
 - d. Proposed layout of field office exterior identifying sign, showing all text, font, colors, and graphics (if any).
 - e. Proposed type of Internet service; name of proposed Internet service provider; and product data and technical information on equipment (if any) required for Internet service.
 - f. Office Equipment: Product data and technical information for copier, telephones, and other office equipment.

PART 2 - PRODUCTS

2.1. FIELD OFFICE CONSTRUCTION AND SITE REQUIREMENTS

A. Site at Field Office:

1. Allocate total of 10 reserved parking spaces for use by ARCADIS and NYS PARKS in close proximity to the field offices.
2. Provide sidewalk or walkway, not less than four feet wide, of bituminous pavement, concrete, crushed stone, or other material approved for the full distance between parking area and field office.

B. Field Office, Minimum Construction: Field office shall comply with the following:

1. Structurally sound foundation and superstructure.
2. Size: Floor area of not less than 1,265 square feet. Provide “double-wide” trailer approximately 23 feet wide by 55 feet in length.
3. Completely weather-tight and insulated, with minimum R-19 insulation.
4. Exterior finish to be submitted and approved in advance of mobilization.
5. New interior finishes approved, including resilient floor covering in first-class condition.
6. Field Office Ingress and Egress:
 - a. Four doors for ingress and egress for each field office unit, each with landing, stairs, and railing conforming to building codes in effect at the Site. A handicap accessible ramp shall be provided for access at one of the doors as approved.
 - b. Landing and stairs shall have slip-resistant walking surfaces, and be metal, fiberglass, or concrete.
 - c. Railing shall be metal or fiberglass.
 - d. Door Security:
 - 1) Doors shall be secure and lockable.
 - 2) Furnish each door with suitable, lockable security bar. Security bar shall be Master Lock 265DCCSEN Dual-Function Security Bar, or equal.
7. Windows:
 - a. Window area equal to not less than ten percent of floor area.
 - b. Windows shall each have insect screen and operable sash.
 - c. Provide each window with lock and exterior security bars approved by ARCADIS and PARKS.

8. One lockable closet for storage.
9. Keys:
 - a. Furnish two identical sets of keys suitable for operating all keyed locks, including ingress/egress door locks, security bars for doors, window locks, closets, and office furnishings.
 - b. Permanently label each key to indicate its associated lock.
10. Restroom:
 - a. Provide in field office one private restroom that is ADA-compliant including one lavatory, one toilet, and medicine cabinet with mirror, soap dispenser, and paper towel holder.
 - b. Provide each restroom with appropriate electric ventilation fan.
11. Exterior Sign:
 - a. Field office identifying exterior sign, approved by ARCADIS and PARKS. Sign shall be durable, weatherproof, suitable for long-term exposure to sunlight.
 - b. Exterior sign shall be not less than two feet high by three feet wide, installed at location determined in field and acceptable to ARCADIS and PARKS.
 - c. Sign shall be in color, as presented in the layout below.
 - d. ARCADIS Sign Layout: Sign layout and general proportions shall be as presented below. Text of first line and last line shall be Arial. Text size and size of graphic shall be proportionate to the graphic below. ARCADIS will furnish graphic as JPG file for use by CONTRACTOR in preparing the sign.



- e. PARKS Sign Layout: Sign layout and general proportions shall be as presented below. Text of first line and last line shall be Arial. Text size and size of graphic shall be proportionate to the graphic below. PARKS will furnish graphic as JPG file for use by CONTRACTOR in preparing the sign.



C. Field Office Optional Construction:

1. Provide mobile office trailer in first-class condition approved by ARCADIS and PARKS, specifically designed for use as construction field office and complying with requirements of this Section.
2. Provide skirting around perimeter of each mobile field office trailer.
3. Supplier: Provide field office by one of the following:
 - a. Pac-Van, Inc.
 - b. Modular Space Corporation (ModSpace).
 - c. Williams Scotsman, Inc.
 - d. Or equal.

2.2. FIELD OFFICE UTILITIES

A. Comply with Section 01510, Temporary Utilities.

B. Provide the following for the field office:

1. Electrical System and Lighting:
 - a. Electric service as required, including paying all costs.
 - b. Interior lighting of not less than 50 foot-candles at desktop height.
 - c. Minimum of eight 120-volt, wall-mounted, duplex convenience electrical receptacles.
 - d. Exterior, wall-mounted lighting at each entrance to field office, not less than 250 watts each.
2. Heating, Ventilating, and Air Conditioning System:
 - a. Provide automatic heating to maintain indoor temperature in field office of not less than 65 degrees F in cold weather. Furnish all fuel and pay all utility costs.
 - b. Automatic cooling to maintain indoor temperature in field office of not warmer than 75 degrees F in warm weather.
3. Water and Sewerage:

- a. Provide potable water service for each plumbing fixture associated with field office. Potable water service is not available on-site from the OWNER's supply. CONTRACTOR shall provide potable water tanks, or other means of water supply, for use.
 - b. Provide sanitary sewerage for each lavatory/sink and toilet.
 - c. Utility Connections – General:
 - 1) Comply with Laws and Regulations, including plumbing and sewer codes, and requirements of authorities having jurisdiction.
 - 2) Protect plumbing from freezing.
 - d. Potable Water Service: Provide the following:
 - 1) Type K copper waterline from potable water main to each plumbing fixture.
 - 2) Reduced pressure zone (RPZ)-type backflow preventer in accordance with Laws and Regulations and requirements of authorities having jurisdiction.
 - 3) Provide 15-gallon electric hot water tank or tankless hot water heater, and hot water piping to serve each lavatory/sink in field office.
 - 4) Not less than one exterior hose bib, with not less than 50 feet of hose, located adjacent to field office sidewalk or walkway, near field office ingress/egress doors. Provide wall-mounted hose reel or hose caddy.
 - 5) Before placing potable water system into service, disinfect piping and appurtenances in accordance with Laws and Regulations.
 - e. Sanitary Sewerage:
 - 1) Provide PVC or other appropriate piping, arranged in accordance with Laws and Regulations, to convey wastewater from field office to holding tank provided by CONTRACTOR. Discharge and connection to the facility sanitary sewer is not permitted.
 - 2) Provide pumping and disposal of holding tank contents at appropriate, regular intervals.
4. Internet Access:
- a. Obtain and pay for Internet service until removal of the field office, with unlimited (untimed) Internet access, for ARCADIS' and PARKS' sole use.
 - b. Set up system and appurtenances required and verify functionality in the field office.
 - c. Internet service shall be one of the following, listed in order of preference; provide a lower type of access only when the next-higher level is unavailable:
 - 1) Fiber-optic or Cable Provider Service:

- a) Provide service via communication service provider via either cable or fiber-optic service at download speed of not less than 15 megabytes per second (Mbps) and upload speed of not less than 1 Mbps.
- b) Provide appropriate modem, cabling, and appurtenances.

2) DSL:

- a) Provide service via symmetrical digital subscriber line with download speed of not less than 1.5 Mbps and upload speed of not less than 384 kilobits per second (Kbps).
- b) Provide dedicated telephone line for Internet access.
- c) Provide DSL filters on each non-DSL outlet in the field office telephone system.

3) Mobile Broadband Wireless:

- a) Provide mobile broadband wireless 4G network by AT&T, Verizon, Sprint, T-Mobile, or equal, with download speed of not less than 37 Mbps and upload speed of not less than 17 Mbps.
- b) Provide mobile broadband wireless router. Product and Manufacturer: Linksys Wireless-G Router for Mobile Broadband, or equal.
- c) Mobile broadband air-card for field office. Product and Manufacturer: Sierra Wireless 597E, Novatel Merlin EX720, or equal.
- d) Router and air-card will remain CONTRACTOR's property upon removal of field office from the Site.

4) Satellite:

- a) Provide 4G network service with download speed of not less than 12 Mbps.
- b) Provide required equipment, including outdoor unit (dish) and indoor satellite modem equipment, together with required cabling provided.
- c) Provide telephone modem in computer, together with telephone line and service, for file uploading.

- C. Should actions of utility companies delay the complete set up of field office, CONTRACTOR shall provide temporary electricity, heat, water supply, sanitary facilities, and telephone service as required at no additional cost to ARCADIS or PARKS.

2.3. FURNISHINGS AND EQUIPMENT

- A. Provide the following furnishings and equipment:

1. Desks: One 5-drawer desk for each office area/work space indicated on the field office layout plan attached to this Sect. Each desk shall be five feet long by 2.5 feet wide with not less than one file drawer per desk, suitable for storing 8.5-inch by 11-inch documents.
2. Desk Chairs: One new or used (in good condition) five-point, high backed, cushioned swivel chair with seat-height adjustment, for each office area/work space indicated on the field office layout plan attached to this Section.
3. Other Chairs: Four side chairs with arm rests and padded seats and backs, and eight metal folding chairs without arm rests.
4. Two new or used (in good condition) folding tables each eight feet long by 2.5 feet wide.
5. Two new or used (in good condition) folding tables each four feet long by 2.5 feet wide.
6. Conference Table: One conference table equipped with 10 chairs and suitable to accommodate 10 people.
7. Plan rack(s) to hold not less than eight sets of the Drawings.
8. Two 4-drawer file cabinets.
9. One 2-door storage cabinet.
10. (Not used).
11. Polyethylene waste baskets, each with capacity of not less than seven gallons. Furnish one in each office/work space indicated on the field office layout plan attached to this Section; one for the common area; and one for the restroom.
12. Suitable doormat at each exterior ingress/egress door.
13. Cork tack-board, 2.5 feet by three feet, with thumbtacks. Provide one for each office/work space shown on the field office layout plan attached to this Section and one in the common area.
14. One white board for use with dry markers, approximately six feet by four feet, with marker holding tray, installed by CONTRACTOR at location directed by ARCADIS and PARKS in the field. Furnish supply of colored markers and eraser for the white board.
15. Safety Equipment: Provide the following:
 - a. Fire extinguishers with associated signage.
 - b. Smoke detectors with supply of batteries.
 - c. Carbon monoxide detector with power supply.
 - d. Provide in accordance with Laws and Regulations. For each field office structure, provide not less than two wall-mounted fire extinguishers, three battery operated ceiling-mounted smoke detector, and one carbon monoxide detector, each suitably located and installed in accordance with manufacturer's instructions.

16. First-Aid Kit:

- a. In addition to first-aid stations otherwise required by the Contract Documents, provide for ARCADIS's and PARKS' sole use a first-aid kit in ARCADIS's and PARKS' field office.
- b. Product and Manufacturer: Zee Medical Service Co., Item 0152, "Medium Four-Shelf Plastic Cabinet", www.zeemedical.com; or equal.

17. Temperature and Humidity Monitor:

- a. Sensor installed outdoors in shade, display installed inside field office. Unit shall display daily minimum and maximum temperature and current temperature, and be capable of displaying daily minimum and maximum relative humidity and current relative humidity, and have audible alarm and adjustable alarm setpoints.
- b. Manufacturer and Product: Provide Fisher Scientific "Traceable Remote Alarm RH/Temperature Monitor" Catalog No. 14-649-84; or equal.
- c. Provide batteries for unit as required.

18. Personal Protective Equipment for Visitors: Furnish the following:

- a. Hardhats: Eight, each with full brim, of fiberglass or thermoplastic; each with ratchet suspension; white in color.
- b. Safety Glasses: Eight, each with clear lenses, polycarbonate, anti-fog and anti-scratch coating, suitable to fit over personal eyewear.
- c. Reflective Safety Vest: Eight, each of polyester mesh or other material acceptable to ARCADIS and PARKS, color to be high-visibility orange, with one-inch-wide reflective tape, one-size-fits-all design.
- d. Earplugs: Supply of foam, disposable earplugs. Promptly resupply when stock is depleted.

19. Two electric clocks.

20. One electric coffee maker, with ten-cup capacity or larger.

21. Bottled water with electric cooler dispenser for five-gallon bottles, with cup dispenser.

22. Multi-function Color Copier:

- a. One new machine with the following functions: photocopying, network printing, scanning to produce PDF and JPG files, and e-mail.
- b. Products and Manufacturers: Provide one of the following:
 - 1) Xerox WorkCentre 7220.
 - 2) Konica Minolta Bizhub C224e
 - 3) Or equal.
- c. Minimum Memory: 2 GB.

- d. Ten-bin sort capacity, 8.5-inch by 11-inch, 8.5-inch by 14-inch, and 11-inch by 17-inch paper capacity, enlarging and reducing capabilities, stream-feed capability, bypass feeder, stapling capability, and double-sided copying capability. Copier shall produce not less than 20 copies per minute.
- e. Provide necessary cables and appurtenances to enable all functions specified in this Section, including scan-and-email and printing from field office computers. Furnish services of manufacturer's representative to set up and service copier.

PART 3 - EXECUTION

3.1. INSTALLATION

- A. Install field office and related facilities in accordance with Laws and Regulations.
- B. Install materials and equipment, including prefabricated structures, in accordance with manufacturer's instructions.

3.2. CLEANING, MAINTENANCE, AND SUPPLIES

- A. Furnish the following maintenance services:
 - 1. Immediately repair malfunctioning, damaged, leaking, or defective field office structure, site improvements, systems, and equipment.
 - 2. Provide computer supplies and pay for maintenance on CONTRATCOR-furnished computer system and copier.
 - 3. Promptly provide snow and ice removal for ARCADIS' and PARKS' field office, including parking area, walkways, and stairs and landings.
 - 4. Provide daily maintenance and janitorial service of field office and sanitary facilities. Clean field office not less than once per week Sweep or vacuum field office not less than every other day when site conditions are such that dirt or mud is frequently tracked into field office.
 - 5. Waste Disposal:
 - a. Properly dispose of trash and waste as needed, not less than twice per week.
 - b. Properly handle and dispose of recyclables. Do not dispose of recyclables as trash.
 - c. Dispose of other waste, if any, as required, to avoid creation of nuisances and adverse environmental effects. Properly dispose of electronic waste, when necessary, at proper waste receiving facility.
 - 6. Strip and wax all floor surfaces in the field office not less than once per year.
- B. Consumables: Provide the following consumables as needed:

1. Toner and ink cartridges for printers and copier, as required.
2. Paper supplies for printer and copier. Always maintain in field office not less than one ream of each size of paper for which printer and copier are capable.
3. Dry markers in six colors and white board eraser set. Replace markers when exhausted or lost.
4. Bottled water suitable for water dispenser and disposable cups.
5. One (1) microwave, one (1) dormitory style refrigerator and one (1) toaster oven.
6. Coffee supplies, including coffee, filters, cups, sugar, creamer, and stir-sticks.
7. Hand-soap, paper towels, toilet paper, cleansers, and janitorial implements, including broom.
8. Batteries for smoke detector and other battery-powered items furnished by CONTRACTOR.
9. Replace fire extinguishers upon expiration.
10. Not less-often than monthly, inspect first-aid kit and inventory items consumed or used and remove items that are at or near their expiration date. Promptly replace and restock consumed and expired items.

3.3. REMOVAL

- A. Remove field office and furnishings when directed by ARCADIS and PARKS, prior to inspection for final completion. Unless otherwise indicated in this Section, upon removal the field office structure, furniture, equipment, and other contents of the field office will be Contractor's responsibility for ownership and disposition.

END OF SECTION

SECTION 015639 – TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work. This includes:
 - 1. General Tree Protection fencing,
 - 2. Temporary Plant Protection fencing
 - 3. Aeration tub system installation in areas where the grades are raised
 - 4. Road Closed fencing and signage.
- B. Related Requirements:
 - 1. Section 311000 "Site Clearing"
 - 2. Section 312000 "Earth Moving"
 - 3. Section 329300 "Exterior Plants"
 - 4. Section 329600 "Transplanting"

1.3 DEFINITIONS

- A. Caliper: Diameter of a trunk measured by a diameter tape at a height 6 inches above the ground for trees up to and including 4-inch size at this height and as measured at a height of 12 inches above the ground for trees larger than 4-inch size.
- B. General Tree-Protection: General tree protection fencing around groupings of trees as well as individual tree guard surrounding single tree trunk delineating area not to be disturbed during construction and indicated on drawings.
- C. Temporary Plant Protection: Plant protection fencing for isolated areas of the site and installed only during site construction in those areas indicated on the drawings.
- D. Critical Root Protection Zone (CRZ): Area surrounding individual trees or groups of trees to be protected during construction, as indicated on Drawings and defined by the drip line of individual trees or the perimeter drip line of groups of trees unless otherwise indicated.
- E. Diameter Breast Height (DBH): Diameter of a trunk as measured by a diameter tape at a height 54 inches above the ground line.

- F. Drip line: Outermost circumference of a tree canopy or the outermost extents of the collective canopy of a group of trees.
- G. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETING

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:
 - a. Tree service firm's personnel and equipment needed to make progress and avoid delays.
 - b. Quality-control program.
 - c. Coordination of Work and equipment movement with the locations of protection zones.
 - d. Trenching with air spade within protection zones.
 - e. Field quality control.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, and locations of protection-zone and road closed fencing and signage, showing relation of equipment-movement routes and material storage locations with protection zones.
 - 2. Detail fabrication and assembly of protection-zone fencing and signage.
 - 3. Indicate extent of trenching with air spade within protection zones.
- C. Samples: For each type of the following:
 - 1. Organic Mulch: 1-quart volume of organic mulch; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For tree service firm and certified arborist.
- B. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
 - 1. Use sufficiently detailed photographs or video recordings.
 - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.
 - 3. Identify any pests or disease on trees or other plants to remain that should be addressed in maintenance recommendations.
- C. Quality-control program.

1.7 QUALITY ASSURANCE

- A. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this Project and that will assign an experienced, ISA Certified arborist to Project site during execution of the Work. Tree service firm shall have heritage tree experience working in landscapes and plaza areas with tight conformance to grade conditions.
- B. Quality-Control Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work without damaging trees and plantings. Include dimensioned diagrams for placement of protection zone fencing, the arborist's and tree-service firm's responsibilities, instructions given to workers on the use and care of protection zones, and enforcement of requirements for protection zones.

1.8 FIELD CONDITIONS

- A. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Moving or parking vehicles or equipment.
 - 3. Foot traffic.
 - 4. Erection of sheds or structures.
 - 5. Impoundment of water.
 - 6. Excavation or other digging unless otherwise indicated.
 - a. When excavation is approved by the Director's Representative and the Arborist only airspading will be permitted. No open face digging.
 - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- B. Do not direct vehicle or equipment exhaust toward protection zones. Idling of machinery for more than 3 minutes next to tree is prohibited.
- C. Prohibit heat sources, flames, ignition sources, chemical mixing, concrete washouts, and smoking within or near protection zones and organic mulch.

PART 2 - PRODUCTS

2.1 BACK-FILL SOIL:

- A. Backfill Soil: Planting soil of suitable moisture content and granular texture for placing around tree; free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.

2.2 AERATION TUBE SYSTEM

- A. Basis-of Design Product: Subject to compliance with requirements, provide the following or approved equal

B. Rootwell Pro-318 manufactured by Rootwell

1. Contact information
Rootwell Products, Inc
P.O Box 159
Bonita Springs, FL 34133
Phone: 248-761-3805 / 888-766-8935
URL www.rootwell.com/
2. Specifications
 - a. Materials: HDPE porous cylinder with HD Styrene cap (30% recycled materials)
 - b. Cap color: green.
 - c. Refer to drawings for details.
 - d.

2.3 GENERAL TREE PROTECTION FENCE:

- A. Height: per drawings
- B. Main Frame 1 3/8" O.D. 16 ga steel tubing with welded joints.
- C. Supports: cross bracing with vertical and horizontal steel support.
- D. Chain link wire 2 3/8", 12 ga mesh-laced on all sides.
- E. Finish: hot-dip, zinc galvanized steel.
- F. Signage: as indicated.
 1. Color: White lettering on NYS Parks green (Pantone: 350C / CMYK: 80/21/79/64) field.

2.4 TEMPORARY PLANT PROTECTION FENCE

- A. Height: as indicated.
- B. Posts: as indicated.
- C. Material: 10 ga vinyl-coated welded wire mesh. Openings to be 2 inches wide by 4 inches height.
- D. Color: black

2.5 ROAD CLOSED FENCE WITH STAND AND SIGNAGE: :

- A. Height: per drawings
- B. Main Frame 1 3/8" O.D. 16 ga steel tubing with welded joints.
- C. Supports: cross bracing with vertical and horizontal steel support.

- D. Chain link wire 2 3/8", 12 ga mesh-laced on all sides.
- E. Finish: hot-dip, zinc galvanized steel.
- F. Signage: as indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

3.2 PREPARATION

- A. Locate and clearly identify trees, shrubs, and other vegetation to remain. Tie a 1-inch blue vinyl tape around each tree trunk at 54 inches above the ground.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

3.3 ROAD CLOSED FENCE

- A. Place Road Closed Fence as indicated on the drawings and maintained in that location unless approved by the Director's Representative.

3.4 PROTECTION ZONES

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.
- B. Do not remove Tree Protection Fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
- C. Do not store materials or equipment, even temporarily, within the protection zone.
- D. Maintain protection zones free of weeds and trash.
- E. Maintain all protection zone fencing in good condition as acceptable to Director's Representative and remove when construction operations are complete, and equipment has been removed from the site.

3.5 EXCAVATION

- A. General: Excavate at edge of protection zones where demolition is to occur and for trenches indicated within protection zones according to requirements in Section 312000 “Earth Moving” unless otherwise indicated.
- B. Trenching within Protection Zones: Where trenches are required within protection zones to remove utilities, excavate only when supervised by the ISA Certified arborist. Excavate under or around tree roots with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with the removal of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.
 - 1. Roots to be cut over 3 inch diameter should be confirmed with the Arcadis Arborist or NYS Parks Director’s Representative.
- C. Redirect roots where tree protection zone intersects with site demolitions area under the supervision of the arborist. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to demolition location and redirection is not possible, cut roots approximately 3 inches back from demolition and as required for root pruning. Redirect roots into backfill areas where possible.
- D. When demolition is complete and the area is being backfilled, redirect the roots of the tree under the supervision of the arborist so that, where possible, they radiate out from the trunk and into the backfilled area.
- E. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a consistently moist condition. Temporarily support and protect roots from damage under the supervision of the arborist until they are permanently relocated and covered with soil.

3.6 SOIL DECOMPACTION AT EXISTING TREES

- A. Contractor shall follow direction on decompaction procedures within critical root zones of existing trees as described by the Arborist. In addition, Contract Documents indicate minimum requirements for tree root decompaction requirements.

3.7 ROOT PRUNING

- A. Prune only roots that cannot be exposed using air spade and redirected during the demolition of structures.
- B. Prune tree roots that are affected by the site demolition and cannot be otherwise protected by redirection. Prune roots as follows, unless arborist has provided detailed written instructions specific to the trees at this location:
 - 1. Cut roots manually by exposing the digging a trench and cutting exposed roots with clean, sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
 - 2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.

3. Cover exposed roots with burlap and water regularly to keep continually moist.
 4. Backfill as soon as possible according to requirements in Section 312000 “Earth Moving”
- C. Root Pruning within Protection Zone: Clear and excavate with air spade to the depth of the required excavation to minimize damage to tree root systems. Cleanly cut roots as close to excavation as possible.

3.8 CROWN PRUNING

- A. Prune branches that are affected by temporary and permanent construction. Prune branches only as directed by ISA Certified arborist and approved by the Director’s Representative.
1. Prune to remove only injured, broken, dying, or dead branches unless otherwise indicated. Do not prune for shape unless otherwise indicated.
 2. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system.
 3. Pruning Standards: Prune trees according to ANSI A300 (Part 1).
- B. Unless otherwise directed by arborist and acceptable to Director’s Representative, do not cut tree leaders.
- C. Cut branches with clean, sharp pruning instruments; do not break or chop.
- D. Do not paint or apply sealants to wounds.
- E. Provide subsequent maintenance pruning during Contract period only as recommended by arborist and approved by the Director’s Representative.
- F. Chip removed branches and legally dispose of off-site.

3.9 REGRADING

- A. Lowering Grade within Protection Zones: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.
1. Root Pruning: Markout roots to be pruned with spray paint that are over 3 inches in diameter and confirm with Arcadis arborist or NYS Parks Director prior to pruning. After confirmation prune tree roots exposed by lowering the grade under the supervision of the arborist. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.
- B. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone as recommended by arborist, unless otherwise indicated on drawings. Maintain existing grades within the protection zone.
- C. Temporary Minor Fill within Protection Zones: Where existing grade is 2 inches or less below elevation of finish grade, temporarily fill with specified soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations.

3.1 INSTALLATION OF AERATION TUBE SYSTEM

- A. Install as indicated in the contract drawings where soil has been added to the top of the root zone for the purpose of changing the grade.
- B. Do not raise grade where it is not indicated.
- C. Install aeration tube system per the manufacturers written instructions.

3.2 FIELD QUALITY CONTROL

- A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.3 REPAIR AND REPLACEMENT

- A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Director's Representative.
 - 1. Submit details of proposed pruning and repairs.
 - 2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
 - 3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Director's Representative.
- B. Trees: Remove and replace trees indicated to remain that are more than 15 percent dead or in an unhealthy condition or are damaged during construction operations that Director's Representative determines are incapable of restoring to normal growth pattern.
 - 1. Replacement Trees: Provide new trees of the same size and species as those being replaced for each tree that measures 4 inches or smaller in caliper size.
 - 2. Restitution Planting: Provide new tree(s) of 3-inch caliper size for each tree being replaced that measure more than 4 inches in caliper size. Provide one additional tree for each 4-inch caliper increment above 4 inches. For example, a 6-inch caliper restitution credit would equal two (2) 3-inch caliper trees. Tree shall be planted at same location or elsewhere within park, as directed by the Director's Representative.
 - a. Species: As selected by Director's Representative.
 - 3. Plant and maintain new trees as specified in Section 329300 "Exterior Plants."
 - 4. Refer to Section 329600 "Transplanting" for repair and replacement of trees in the transplanted orchard.
- C. Mulch Removal: Rake mulched area within protection zones, being careful not to injure roots. Rake to loosen and remove all mulch before any invasive removal, seeding, and planting operations begin.
- D. Soil Aeration: Where directed by Director's Representative, aerate surface soil compacted during the Work. Aerate 10 feet beyond drip line and no closer than 36 inches to tree trunk. Drill 2-inch- diameter

holes a minimum of 12 inches deep at 24 inches o.c. Backfill holes with an equal mix of augured soil and sand.

3.4 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off Owner's property, at the Contractor's Expense.

END OF SECTION 015639

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SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Division 01 Section "Substitution Procedures" for requests for substitutions.
 - 2. Division 01 Section "References" for applicable industry standards for products specified

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

- 1.4 Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.5 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.6 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.

3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.8 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 3. See Divisions 02 through 33 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.

5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 3. Products:
 - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
 4. Manufacturers:
 - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
 5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with

requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION: NOT USED

END OF SECTION

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SECTION 01 66 00 – SPECIALTY / CUSTOM MATERIAL STORAGE AND
HANDLING REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. SECTION INCLUDES:

1. Inventory of Items turned over to Contractor by Parks. Inventory includes:
 - a. Wallpapers: Block printed wallpapers,
 - b. Rugs: custom loomed or woven rugs,
 - c. Floor Cloths: handmade floor cloths.
2. Storage of Materials
3. Protection of materials against damage from:
 - a. Handling
 - b. Exposure to elements or environments
 - c. Condensation, mold, leaks, smells, smoke and other contaminants.

B. RELATED SECTIONS:

1. Wallpaper Installation: Section 097200
2. Historic Carpet Installation: Section 096816
3. Historic Floorcloth Installation: Section 096816
4. Plaster Repair: Section 090120
5. Wood Floor Restoration: Section 090160
6. Temporary Protection: Section 013591

1.2 DEFINITIONS

- A. Wallpaper: For the purpose of this contract Wallpaper means handmade, custom block printed wallpaper. Wallpaper fabricated using 18th century techniques including carved wood blocks and custom colors. All wallpapers are selected or reproduced based on historic documentation. See wallpaper installation specifications for more details. Depending on pattern, wallpapers were custom fabricated to order in NY or England (imported). Note: long lead time to order replacements or additional materials.
- B. Floorcloth: For the purpose of this contract Floorcloth means an artist created, handmade floor covering. A floorcloth is constructed of a canvas base with painted finishes sealed with a protective coating. Floorcloths are based on 18th century design using traditional and modern materials. Please see Floor cloth installation specification. Floor cloths require long lead times for due to limited fabricators, intense labor and material curing times.
- C. Carpet: For the purpose of this contract, Carpet means custom loomed or woven 18th century styled and manufactured floor coverings. Carpets are manufactured in 18th century dimensions that require on-site, custom assembly including hand sewing pieces and binding edges. Carpets feature unique color, patterns & borders. Stair runners require installation of bronze stair rods. See specification section for more details. Carpets primarily imported from England with the exception of hand loomed items from NYS. Long lead times and very limited manufactures.

PART 2 - PRODUCTS

2.1 MATERIALS FOR PROTECTION

- A. General: Provide materials suitable for the protection of fragile and sensitive textiles and paper products.
- B. Plastic Sheeting: Provide clean, unused, dry plastic sheeting to protect materials from moisture storage and transport.
- C. Pallets: Provide sound, clean (no bugs, mold, excessive moisture) wood or plastic pallets to store materials off the floor.
- D. Marking/Labels: Clear, visible, and permanent labels for all containers/boxes/tubes.

PART 3 - EXECUTION

3.1 Conduct an inventory of all materials supplied by PARKS.

- 1. Inventory to be completed with Owner's Representative present.
- 2. Confirm each item is in good condition.
- 3. Confirm order is complete & sufficient to complete work.
- 4. Maintain proper labeling on each container/box/tube.

3.2 INVENTORY (Wallpapers)

ROOM #	ROOM NAME	TYPE	NAME	Box #
FIRST FLOOR				
101	Entry Hall	Wallpaper	Custom Block - Greek Vase	
102	South Parlor	Wallpaper	Custom Block - French Watered Silk Moire	
		Wallpaper Border	Custom Block - Van Cortlands	
103	North Parlor	Wallpaper	Custom Block - French Watered Silk Moire	
		Wallpaper Border	Custom Block - Van Cortlands	
104	Dining Room	Wallpaper	Custom Block - Jay Grey Floral	
105	Rear Hall	Wallpaper	Custom Block - Greek Vase	
106	Jay Office	Wallpaper	Custom Block - Pinapple Stripe	
107	Office Hall	Wallpaper	Custom Block - Blanchard Ashlar (B)	
107 A	Passage	Wallpaper	Custom Block - Blanchard Ashlar (B)	
201	Hall	Wallpaper	Custom Block - Greek Vase	

202	Dressing Room	Wallpaper	Carlyle Damask CD10	
203	Bedroom	Wallpaper	Carlyle Damask CD10	
204	Bedroom	Wallpaper	Toile de la Fontaine	
205	JJ Bedroom	Wallpaper	Van Cortlandt Rosette (A)	
206	Rear Hall	Wallpaper	Custom Block - Greek Vase	
209	Stair	Wallpaper	Custom Block - Blanchard Ashlar (B)	
213	Hall	Wallpaper	Custom Block - Greek Vase	
216	Day Nursery	Wallpaper	Sandycombe Lodge (Pale Green)	

3.3 INVENTORY (Carpets & Floor Cloths)

ROOM # FIRST FLOOR	ROOM NAME	TYPE	Box #s
101	Entry Hall	Custom Floorcloth: Faux Marble Tile	
	Stairs	Custom Hand Woven: Venetian Runner	
102	South Parlor	Custom Woven: Wilton Medallion	
103	North Parlor	Custom Woven: Wilton Medallion	
104	Dining Room	Custom Turkish - multi sheet	
105	Rear Hall	Custom Floorcloth: Faux Marble	
106	Jay Office	Existing Custom Carpet to remain - protect in place.	
107	Office Hall	Custom Floorcloth: Faux Tile	
107 A	Passage	Custom Floorcloth: Faux Tile	
201	Hall	Custom Hand Woven: Venetian Runner	
202	Dressing Room	Custom Woven: Floral geometric 1827	
203	Bedroom (Nancy)	Custom Woven: Floral geometric 1827	
204	Bedroom (William & Augusta)	Custom Woven: Small Floral 9932-4	
205	Bedroom (John Jay)	Custom Woven: Neo Block	
206	Rear Hall	Custom Hand Woven: Venetian Runner	
213	Hall	Custom Woven	
214	Night Nursery	Custom Woven: Floral geometric 221362	
216	Day Nursery	Custom Woven: Floral geometric 221362	

3.4 PROTECTION

- A. Store all items in a climate-controlled space prior to installation.
 - 1. Temperature range 65°F to 80°F
 - 2. Humidity range 40% RH to 70% RH (relative humidity)
 - 3. Out of direct sunlight
 - 4. Well ventilated space free of condensation, mold, strong odors, dust or significant air pollutants.
- B. Store all items in dry conditions, raised off the floor on pallets.
- C. Store & move all items according to manufactures instructions:
 - 1. Wallpapers to be stored upright (vertically) as indicated on Boxes.
 - 2. Do not stack wallpaper boxes, no not lean or damage rolls in any way.
 - 3. Store carpets and floor cloths as indicated on Boxes/ Tubes.
 - 4. Do not stack, pile or lean.
 - 5. Do not cantilever boxes over pallets – fully support material.
 - 6. Do not crush or bend.

3.5 LABELING

- 1. Maintain clear labeling on all packaging through installation.
- 2. Clearly and fully mark and identify as to Project, Item, Room, Box #, Orientation
- 3. Do not label actual materials (wallpaper/carpet or floor cloth)

3.6 SECURITY

- 1. Restrict access to storage materials.

END OF SECTION

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner-installed products.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.
 - 9. Correction of the Work.
- B. Related Requirements:
 - 1. Division 01 Section "Summary" for limits on use of Project site.
 - 2. Division 01 Section "Submittal Procedures" for submitting surveys.
 - 3. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching

2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 4. Dates: Indicate when cutting and patching will be performed.
 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal (If/as required).

1.5 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Mechanical systems piping and ducts.
 - f. Control systems.
 - g. Communication systems.
 - h. Fire-detection and -alarm systems.
 - i. Conveying systems.
 - j. Electrical wiring systems.
 - k. Operating systems of special construction.
 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety.
 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

- B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- C. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Division 01 Section "Summary."
- F. Existing Utility Services: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

- a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 - 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- F. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls."
- G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- H. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

- I. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Division 01 Section "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Disposing of nonhazardous demolition and construction waste.
- B. Related Requirements:
 - 1. Division 01 Section "Execution" for disposition of waste resulting from limited demolition activities involving site improvements.

1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

PART 2 - PRODUCTS: NOT USED

PART 3 - EXECUTION

3.1 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site / State Property and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.
- D. Disposal: Remove waste materials from Owner's property and legally dispose of them

END OF SECTION

SECTION 017700 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Other provisions pertaining to this Section are included in Article 9 of the General Conditions.

1.2 PERMITS AND COMPLIANCE

- A. Certificate of Occupancy will be issued by Parks (as applicable)

1.3 CONTRACT CLOSEOUT INSPECTIONS

- A. The following 3 inspections will be made in addition to the normal inspections to ensure that all Contract requirements are met and that the Work is complete and acceptable. The purpose of each of these inspections is to furnish the Contractor a written list of Contract exceptions, omissions, and errors so that the Work can be progressed to timely completion in accordance with the Contract Documents.
 - 1. Detailed Inspection: The “Detailed Inspection” will be made when the Work is substantially complete. A copy of the detailed inspection list (detailed punch list) will be furnished to the Contractor. When this inspection progresses over any length of time, copies of the list will be furnished as the inspection progresses so that the Contractor may proceed with the required Work without delay.
 - 2. Final Inspection: The Contractor will be advised of the date and time of final inspection. A copy of the final inspection list (final punch list) containing all incomplete or unsatisfactory items and the time allowed to complete the Work will be furnished to the Contractor.
 - 3. Joint Inspection for Physical Completion (JIPC): The joint inspection for physical completion will be made to verify completion of all punch list items listed on the final inspection list so that the physical completion date (defined in the General Conditions) may be established. All incomplete or unsatisfactory items must be complete prior to this final inspection. No work on site may take place after the physical completion date.
 - 4. Final payment application with all supporting documents shall be submitted within 20 days after the “Joint Inspection for Physical Completion”.

1.4 FINAL CLEANING

- A. Perform final cleaning prior to joint inspection for physical completion. Leave the premises in a neat, unobstructed condition, the work areas broom clean (except where more thorough cleaning is specified), and everything in perfect repair and adjustment.
- B. Clean site; sweep paved areas, rake clean landscaped surfaces.

- C. Remove tools, equipment, waste and surplus materials, rubbish, and construction facilities from the premises as soon as possible upon completion of the Work.

1.5 PROJECT RED-LINE/AS-BUILT DOCUMENTS

- A. Maintain on site, a set of the following contract documents; record actual revisions to the Contract Documents concurrent with construction progress. Upon completion of the work, contractor shall provide accurate and legible red-line documents to OPRHP in Adobe™ PDF format:
 - 1. Contract Drawings.
 - 2. Project Manual.
 - 3. Addenda.
 - 4. Change Orders, Sketches, Requests for Information, and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
- B. Applications for Final payment will not be approved until the Red-Line/As-Built documents are received and approved.
- C. As-built survey shall be performed by a licensed surveyor. Survey shall be compatible with the AutoDesk AutoCAD and shall be submitted in PDF and AutoCAD file formats. Survey content shall include underground and above ground utilities, pavement edges, ramps, building foundations, walls, and any significant site improvements. Provide spot elevations at all ADA ramps and paths to confirm ADA compliance.

1.6 INSTALLATION, OPERATION AND MAINTENANCE (IO&M) MANUALS:

- A. Provide in PDF format IO&M manual including cut sheets, instructions, and reports.

1.7 WARRANTIES

- A. Furnish warranty certification and copies of warranties that extend beyond the one year period required by the General Conditions. Warranties submitted without warranty certification will not be accepted.
 - 1. Warranty Certification: Written certification from the warrantor that invoices for installation, service, supplies, and warranty fees have been paid in full to persons or firms due payment, and that the warranty is in effect and non-retractable due to any of the specified conditions.
 - 2. Applications for final payment will not be approved until the warranty certification and warranty documents are delivered to the Director's Representative.

1.8 FINAL PAYMENT

- 1. Application for final payment will not be approved until the following documents are received and approved by the Director's Representative. They are required within twenty (20) days of the date of JIPC:

- a. Red-Line/As-Built, and other submittals required above and elsewhere in the specifications. Electronic format required.
- b. IO&M Manuals
- c. Warranties required in specifications.
- d. Two (2) original Final Applications for Payment
- e. One copy of the following:
 - 1) Certified Payroll – any not previously submitted
 - 2) AC2948 “Sub-contractors Certification” for all sub-contractors
 - 3) PW51 “Prime Contractor’s Prevailing Rate Certification”

PART 2 - PRODUCTS

2.1 Not used.

PART 3 - EXECUTION

3.1 Not used.

END OF SECTION

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SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Operation manuals for systems, subsystems, and equipment.
 - 4. Product maintenance manuals.
 - 5. Systems and equipment maintenance manuals.
- B. Related Requirements:
 - 1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
 - 2. Divisions 02 through 33 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect will comment on whether content of operations and maintenance submittals are acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
 - 1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.

- a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
 - b. Enable inserted reviewer comments on draft submittals.
- 2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect will return two copies.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
 - 1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:
 - 1. List of documents.
 - 2. List of systems.
 - 3. List of equipment.
 - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to applicable standards.

2.2 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 - 2. Performance and design criteria if Contractor has delegated design responsibility.
 - 3. Operating standards.
 - 4. Operating procedures.
 - 5. Operating logs.
 - 6. Wiring diagrams.
 - 7. Control diagrams.
 - 8. Piped system diagrams.
 - 9. Precautions against improper use.
 - 10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
 - 1. Product name and model number. Use designations for products indicated on Contract Documents.
 - 2. Manufacturer's name.
 - 3. Equipment identification with serial number of each component.
 - 4. Equipment function.
 - 5. Operating characteristics.
 - 6. Limiting conditions.
 - 7. Performance curves.
 - 8. Engineering data and tests.
 - 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
 - 1. Startup procedures.
 - 2. Equipment or system break-in procedures.
 - 3. Routine and normal operating instructions.
 - 4. Regulation and control procedures.
 - 5. Instructions on stopping.
 - 6. Normal shutdown instructions.
 - 7. Seasonal and weekend operating instructions.
 - 8. Required sequences for electric or electronic systems.
 - 9. Special operating instructions and procedures.

2.3 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification

Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

2.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.

3. Precautions against improper maintenance.
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original project record documents as part of operation and maintenance manuals.
 - 2. Comply with requirements of newly prepared record Drawings in Division 01 Section "Project Record Documents."
- F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation

END OF SECTION

SECTION 017839 – PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Division 01 Section "Execution" for final property survey.
 - 2. Division 01 Section "Closeout Procedures" for general closeout procedures.
 - 3. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 4. Divisions 02 through 33 Sections for specific requirements for project record documents of the Work in those Sections

1.03 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
 - 2. Number of Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit one paper-copy set(s) of marked-up record prints.
 - 2) Submit PDF electronic files of scanned record prints and one of file prints.
 - 3) Director's Representative will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) Submit one paper-copy set(s) of marked-up record prints.
 - 2) Submit record digital data files and three set(s) of record digital data file plots.
 - 3) Plot each drawing file, whether or not changes and additional information were recorded
- B. Record Specifications: Submit one paper copy of Project's Specifications, including addenda and contract modifications.

- C. Record Product Data: Submit one paper copy of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- D. Reports: Submit written report biweekly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

PART 2 - PRODUCTS

2.01 RECORD DRAWINGS

- A. Record Prints: In addition to the sets of Contract Documents that are required by Contractor on the Site to perform the Work, the Contractor shall maintain at the Site one copy of all Drawings, Specifications, and Addenda that are part of the Contract as awarded, and also Bulletins, RFI responses, modifications, approved shop drawings, field directives, and other approved changes. These are collectively referred to as "Project Record Documents". Each of these documents shall be clearly marked "Project Record Copy" as indicated below, maintained in a clean and neat condition available at all times for inspection by the Office and shall not be used for any other purpose during the progress of the Work.
 - 1. Each record copy shall bear the legend "PROJECT RECORD COPY" in heavy block lettering, 1/2" high and contain the following data:
 - a. PROJECT RECORD COPY
Contractor's Name _____
Contractor's Address _____
Made by _____ Date _____
Checked by __ (Contractor's Agent) Date _____
 - 2. Where possible, changes from the Contract as awarded Documents shall be conspicuously encircled.
- B. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
- 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Approved changes in the Work, either by Bulletin or field directive.
 - b. Location of underground Work and concealed Work.
 - c. Details not shown in the original Contract Documents.
 - d. All relocations of Work.
 - e. All changes in dimensions.

- f. All access doors.
 - g. Actual location of all plumbing, fire protection, heating, ventilating, air conditioning, electrical, fire alarm, and security assemblies, equipment, and devices.
 - h. Dimensional changes to Drawings.
 - i. Revisions to details shown on Drawings.
 - j. Locations and depths of underground utilities.
 - k. Revisions to routing of piping and conduits.
 - l. Revisions to electrical circuitry.
 - m. Actual equipment locations.
 - n. Duct size and routing.
 - o. Locations of concealed internal utilities.
 - p. Changes made by Change Order or Construction Change Directive.
 - q. Changes made following Engineer's written orders.
 - r. Details not on the original Contract Drawings.
 - s. Field records for variable and concealed conditions.
 - t. Record information on the Work that is shown only schematically.
3. As applicable for the project, such information shall include, but shall not be limited to:
- a. Footing depth in relation to finished grade elevations.
 - b. All changes in floor elevations.
 - c. All structural changes.
 - d. All substitutions.
 - e. Elevations and locations of all underground utilities, services, or structures referenced to permanent above-ground structures or monuments.
 - f. Designation of all utilities as to the size and use of such utilities.
 - g. All invert elevations of manholes.
 - h. The location of all utilities, services and appurtenances concealed in building structures that have been installed different from that required by the Contract.
 - i. Duct sizing and routing.
 - j. Revisions in electrical circuitry.
4. The Contractor shall keep the "Project Record Documents" up-to-date from day to day as the Work progresses. Appropriate documents shall be updated promptly and accurately; no Work shall be permanently concealed until all required information has been recorded.
5. Each month, copies of these Project Record Documents will be examined by the Director's Representative prior to recommending the approval of the partial payment request to ascertain that the record prints reflect the changes to date.
6. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
7. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
8. Mark important additional information that was either shown schematically or omitted from original Drawings.
9. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- C. Record Digital Data Files: In addition to the paper copies at the site that the Contractor is to maintain for general review during the project, the Contractor is to integrate the project record information (as-built conditions) into an electronic submission for the Final Record Drawings. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Same digital data software program (such as AutoCAD, Revit, etc.), version and operating system as the original Contract Drawings.
 2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 3. Refer instances of uncertainty to Engineer of Record for resolution.
 4. The Contractor will be provided the AutoCAD (dwg) files of the Contract Drawing set for its use, which the Contractor is to use and for creation of the electronic AutoCAD formatted Final Record Drawings (“As-builts”) files.
 - a. See Division 01 Section "Submittal Procedures" for requirements related to use of Director’s Representative’s digital data files.
 - b. Director’s Representative will provide data file layer information. Record markups in separate layers.
 - c. Drawing changes issued by the Engineer of Record during the course of construction will be issued as Portable Document Format (pdf) files, which the Contractor is to use to create an AutoCAD file of the change and integrate into the electronic AutoCAD Final Record Drawings (“As-builts”) files.
 - d. Drawing changes issued by the AEOR during the course of construction will be issued as Portable Document Format (pdf) files, which the Contractor may use to create AutoCAD files and use to integrate into the electronic Final Record Drawings (“As-builts”) files
- D. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Director’s Representative determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
 2. Consult Engineer for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- E. Final Record Documents “As-Builts”
1. Final Record Shop Drawings: If installed equipment is at variance with the respective approved shop drawings, the Contractor shall furnish to the Director’s Representative revised shop drawings indicating the actual completed installation one month prior to Substantial Completion as a pdf document.
 2. Mechanical Coordination Drawing: At the conclusion of the project, submit the final coordinated mechanical installation drawing showing the interfaces of all P&D, HVAC, and Electrical items as a pdf document.
 3. Final Record Drawings (referred to in the industry as “As-builts”):
 - a. One month prior to substantial completion, the Contractor shall submit the Final Record Drawings, incorporating all changes appearing on the Contractor “Project Record Documents” onto the original set of bid drawings. The changes to the Contract Documents shall be clearly indicated. The title block for the drawings shall include the name of Contractor and, if applicable, the name of the Consultant who prepared the drawings and Design No., as well as the Project information indicated to be provided for all submittals in and the words “As-built”. The documents are to be created using AutoCad and submitted for review as a pdf document as a single

- file. Upon acceptance, both the final pdf file and a zip file of the final AutoCAD drawings are to be submitted.
- b. One month prior to substantial completion, the Contractor shall submit the Final Record Drawings, incorporating all changes appearing on the Contractor "Project Record Documents" onto the original set of bid drawings. The changes to the Contract Documents shall be clearly indicated. The title block for the drawings shall include the name of Contractor and, if applicable, the name of the Consultant who prepared the drawings, as well as the Project information indicated to be provided for all submittals and the words "As-built". The documents may be created by hand or AutoCAD (dwg) but must be submitted for review as a pdf document as a single file. Upon acceptance, the final pdf file and, if used, the dwg files are to be submitted.
- 4. Shop Drawings for Permanent Records: Where specified in the individual technical specification sections, submit the required shop drawings as a pdf document.
 - 5. The originals of the Contractor's "Project Record Documents" shall be submitted by the Contractor to the Director's Representative when all the Work is completed and shall be approved by the Director's Representative before the Contractor requests final payment.
 - 6. All of the above listed requirements of this Article shall be at the Contractor's expense.

2.02 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 - 7. Note related Change Orders and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file.

2.03 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders and record Drawings where applicable.
- B. Format: Submit record Product Data as annotated PDF electronic file.
 - 1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

2.04 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file.
 - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

PART 3 - EXECUTION

3.01 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Director's Representative reference during normal working hours

END OF SECTION

SECTION 017900 – DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.

1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
- B. Attendance Record: For each training module, submit list of participants and length of instruction time.

1.4 CLOSEOUT SUBMITTALS

- 1. Transcript: Prepared and bound in format matching operation and maintenance manuals. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding video recording. Include name of Project and date of video recording on each page.
- 2. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
- 3. At completion of training, submit complete training manual(s) for Owner's use prepared and bound in format matching operation and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.
- B. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
 - 1. Inspect and discuss locations and other facilities required for instruction.
 - 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
 - 3. Review required content of instruction.
 - 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.

- d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
2. Documentation: Review the following items in detail:
- a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project record documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.
3. Operations: Include the following, as applicable:
- a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
4. Adjustments: Include the following:
- a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
5. Troubleshooting: Include the following:
- a. Diagnostic instructions.
 - b. Test and inspection procedures.
6. Maintenance: Include the following:
- a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning

- e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
7. Repairs: Include the following:
- a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Owner will furnish Contractor with names and positions of participants.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner, through Construction Manager, with at least seven days' advance notice.
- C. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- D. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

END OF SECTION 017900

SECTION 020342 - REMOVAL AND SALVAGE OF HISTORIC CONSTRUCTION MATERIALS

PART 1 GENERAL

1.1 DESCRIPTION

- A. John Jay Homestead is a National Historic Landmark, and is listed on the National Register of Historic Places and in the New York State Register of Historic Places.
- B. The historical and architectural significance of the site and its buildings require particular care when intervening with existing fabric to ensure restoration work and the construction of new interventions are of appropriate quality and undertaken with appropriate care for the historic fabric.
- C. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents, including but not limited to General and Supplementary Conditions and Division 01 Specifications Sections.

1.1 SECTION INCLUDES

- A. Work includes deconstruction and salvage of identified historic items and materials and removal of rubbish and debris.
 - 1. Removal of the following elements:
 - a. Select wood windows and their frames. (See Drawings.)
 - b. Select wood doors and their frames. (See Drawings.)
 - c. Existing wood roof shingles.
 - d. Deteriorated wood siding panels.
 - 1) *Quantity and locations to be confirmed after all existing paint coatings are removed. See Drawings for estimated quantities/locations.*
 - e. Deteriorated brick.
 - 1) *Quantity and locations to be confirmed after all existing paint coatings are removed. See Drawings for estimated quantities/locations.*
 - 2. Dismantling and reinstallation of the following elements:
 - a. Select wood windows and their frames. (See Drawings.)
 - b. Select wood doors and their frames. (See Drawings.)
- B. Specified procedures required for preservation, rehabilitation, restoration, and reconstruction treatment areas.
- C. Historic items and materials are indicated on drawings.

1.2 RELATED REQUIREMENTS

- A. Historical Treatment Procedures – Section **013591**
- B. Restoration Treatments for Historic Masonry – Section **040300**
- C. Restoration Treatments for Historic Metals – Section **050300**
- D. Restoration Treatment for Historic Woodwork – Section **060312**

- E. Restoration Treatment for Period Openings – Section **080300**
- F. Restoration Treatment for Historic Plaster – Section **090120**
- G. Painting and Finishing – Section **099000**

1.3 DEFINITIONS

- A.  Consolidate: To strengthen loose or deteriorated materials in place.
- B. Debris: Nonhistoric building materials and contents destroyed during demolition.
- C. Dismantling: Systematic deconstruction and removal of a structure or its parts and salvage of elements and components for repair, and reinstallation while retaining maximum value.
- D. Existing to Remain: Existing items that are not to be removed or dismantled, except to the degree indicated for performing required Work.
- E. Retain applicable options in "Historic" Paragraph below to coordinate with historic treatments to suit Project. Different areas of Project may require different treatments. Historic spaces, areas, rooms, and surfaces should be indicated on Drawings and generally described as part of the definition. Consider deleting paragraph if the extent and meaning of the term "historic" is clearly indicated on Drawings and in other Specification Sections. See the Evaluations.
- F. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.
- G. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.
- H. Reinstall: To protect removed or dismantled item, repair and clean it as indicated for reuse, and reinstall it in original position, or where indicated.
- I. Remove: To take down or detach a non-historic item located within a historic space, area, or room, using methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.
- J. Repair: To correct damage and defects, retaining existing materials, features, and finishes while employing as little new material as possible. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
- K. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.
- L. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.
- M. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.

- N. Restore: To consolidate, replicate, reproduce, repair, and refinish as required to achieve the indicated results.
- O. Retain: To keep an element or detail secure and intact.
- P. Reversible: New construction work, treatments, or processes that can be removed or undone in the future without damaging historic materials unless otherwise indicated.
- Q. Salvage: To carefully dismantle and protect removed or dismantled items. Items shall be reinstalled or returned to owner, as noted in the Drawings.
- R. Stabilize: To provide structural reinforcement of unsafe or deteriorated items while maintaining the essential form as it exists at present; also, to reestablish a weather-resistant enclosure.
- S. Strip: To remove existing finish down to base material unless otherwise indicated.

1.4 REFERENCE STANDARDS

- A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.5 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Deconstruction Crew's Qualification Statement: Documentation of five consecutive years of work of this type, including 5 projects of similar landmark building scope and complexity, identifying when, where, and for whom the work was performed.
- C. Work Plan: Detailed, proposed instructions for each type of operation of procedures for accomplishment of deconstruction work, including detailed description of the methods and equipment to be used and sequence of operations. Include the following:
 - 1. Extent of deconstruction, removal sequences, temporary and permanent bracing and shoring, and location and construction of barricades and fences.
 - 2. Instructions for removal and storage of period materials specified to be salvaged and reinstalled.
 - 3. Dust control measures.
 - 4. Protection of property to remain undisturbed.
 - 5. Ensure coordination with other work.
 - 6. Plan for sequencing and timely disconnection and reconnection of utility services.
 - 7. Safe conduct of the work. Submit for information only.
- D. List of Items Indicated To Be Salvaged: Prepare a list of items indicated to be salvaged on Drawings clearly indicating their unique tag number, to be salvaged for Owner's use or for reinstallation.

- E. Inventory of Salvaged Items: Submit a list of items that have been removed and salvaged. Include item description, item condition, number of items if more than one of a type, and unique tag number. Include photo of item in original location.

1.6 QUALITY ASSURANCE

- A. Deconstruction Crew Qualifications: Workers trained and experienced in removal and salvage of historic materials.

1.7 FIELD CONDITIONS

- A. Comply with applicable requirements of NFPA 241.
- B. Dust Control: Control dust resulting from removal, salvage, and demolition operations from spreading to occupied portions of the project and creating a nuisance in surrounding area. Use of water to control dust is not permitted when it will result in or create:
 - 1. Damage to existing building materials.
 - 2. Hazardous or objectionable conditions such as ice, flooding, or pollution.
- C. Protection of Existing Historic Property: Before beginning removal, salvage, or demolition work, survey the site and examine the drawings and specifications to determine the extent of the work. Take necessary precautions to avoid damage to existing items to remain in place, be reused, or remain Owner's property. Repair or restore to original condition items damaged by Contractor, using approved means, methods, and techniques. Replace items that cannot be successfully repaired or restored to original condition.
 - 1. Construct and maintain shoring, bracing, and supports required as a result of cutting, removal, or demolition work
 - 2. Ensure that structural elements are not overloaded.
- D. Store materials to be salvaged or recycled daily, out of contact with the ground, under weathertight covering, in areas designated by Owner, and in the manner direct by Owner.
- E. Hazardous Materials: Comply with 29 CFR 1926 and state and local regulations.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 PERIOD TREATMENT, GENERAL

- A.  See Section 013591 for special procedure requirements related to elements and features of historical significance and value.

3.2 GENERAL PROCEDURES

- A. Drawings indicating existing construction, building services, and site utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction, building services, and site utilities arrangements are as indicated.
 - 2. Report discrepancies to Architect before disturbing existing historic elements.
 - 3. Beginning of work constitutes acceptance of existing conditions that are apparent upon examination at that time.
- B. Separate spaces in which removals and salvage operations are conducted from occupied spaces.
 - 1. Provide, erect, and maintain temporary dustproof partitions; see Section 015000.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; exercise care to prevent water and humidity damage.
- D. See Section 024100 for selective demolition of nonhistoric elements.

3.3 ENVIRONMENTAL CONTROLS

- A. Comply with federal, state, and local regulations pertaining to water, air, solid waste, recycling, chemical waste, sanitary waste, sediment, and noise pollution.
- B. Protection of Natural Resources: Preserve the natural resources within the project boundaries or restore to an equivalent condition.
 - 1. Confine removal activities to areas defined by public roads, easements, and work area limits indicated on drawings.
 - a. Temporary Construction: At the conclusion of the project, remove indications of temporary construction facilities, such as haul roads, work areas, structures, stockpiles, or waste areas.
 - 2. Water Resources: Comply with applicable regulations concerning direct or indirect discharge of pollutants to underground and natural surface waters.
 - a. Oily Substances: Prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water in such quantities as to affect normal use, aesthetics, or produce a measurable ecological impact on the area.
 - 1) Store and service construction equipment at areas designated for collection of oil wastes.
 - 3. Dust Control, Air Pollution, and Odor Control: Prevent creation of dust, air pollution, and odors.
 - a. Use temporary enclosures and other appropriate methods to limit dust and dirt rising and scattering in air to lowest practical level.
 - b. Store volatile liquids, including fuels and solvents, in closed containers.
 - c. Properly maintain equipment to reduce gaseous pollutant emissions.
 - 4. Noise Control: Perform removal operations to minimize noise.
 - a. Repetitive, high-level impact noise will be permitted only between the hours of 7:00 a.m. and 7:00 p.m. Stay within the following time limits:

- b. Provide equipment, sound-deadening devices, and take noise abatement measures that are necessary to comply with the requirements of this Contract.

3.4 ITEMS TO BE SALVAGED

- A. General: Salvage elements and components to the maximum extent possible. Maintain a chain of custody of salvaged materials, including the condition of such materials before and after salvage operations.
 - 1. Remove furnishings, equipment, and materials not scheduled for salvage or recycling prior to initiating salvaging procedures.
 - 2. Remove historic items to be salvaged from the structure prior to deconstruction work.
 - 3. Accomplish removal of salvageable items by hand labor to the maximum extent possible.
 - 4. Take care not to damage historic portions of the structure scheduled to remain or items identified for salvage.
 - 5. Obtain hot work permits for removal of elements requiring use of fire- or spark-producing tools or activities that produce sources of ignition.
- B. Site Elements: Remove intact and salvage site elements indicated on drawings.
- C. Metal Elements: Remove intact and salvage metal elements indicated on drawings.
- D. Wood Elements: Remove intact and salvage wood elements indicated on drawings.
- E. Doors and Windows: Remove intact and salvage doors and windows indicated on drawings.
- F. Finishes: Protect special or historic finishes and finish elements indicated on drawings.

3.5 MATERIALS TO BE REMOVED

- A. Remove existing nonhistoric elements as indicated and as required to allow direct access to period construction elements indicated to be restored or salvaged for reuse.
 - 1. Remove items indicated on drawings.
- B. Services: Remove existing systems and equipment to extent indicated, including but not limited to Fire Protection, Plumbing, HVAC, Electrical, and Telecommunications elements:
 - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and other operational components.
 - 2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service switchover.
 - 3. See Section 011000 for other limitations on outages and required notifications.
 - 4. Verify that abandoned services serve only abandoned facilities prior to commencing removals.
 - 5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stubs and tag with identification.
- C. Protect existing historic elements.

1. Prevent movement of structure; provide temporary, removable shoring and bracing if necessary.
2. Perform cutting to accomplish removals neatly, minimizing overcutting.

3.6 MATERIALS TO BE RECYCLED

- A. Recycle removed nonhistoric materials to the maximum extent possible. Remove recyclable materials by hand wherever possible.
- B. Recycle items indicated on drawings.

3.7 CLEANING

- A. Upon completion of work, clean dust, dirt, and debris caused by salvage and demolition operations from portions of existing structure to remain and adjacent areas. Remove and transport debris and rubbish in a manner that prevents spillage on streets or adjacent areas. Obey local regulations regarding hauling and disposal.

END OF SECTION

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SECTION 020344 - SHORING

PART 1 GENERAL

1.1 SCOPE

Provide all labor, materials, equipment, services and transportation of temporary shoring as required to retrieve existing structural components and assemblies, as shown on architectural drawings, to be preserved for use in educational exhibits. Demolition to proceed in controlled manner to protect adjacent facilities and to permit retrieval and reuse/downcycling of existing building materials.

1.2 RELATED REQUIREMENTS

Submittals	Division 1
Structure Demolition	Section 024116
Historic Wood Repair	Section 060312
Heavy Timber Framing	Section 061300

1.3 REFERENCE STANDARDS

Refer to material standards for heavy timber framing, Section 061300

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- A. Provide submittals in accordance with Division 1.
- B. Provide shop drawings in accordance with Division 1 illustrating the means of temporary support of structure to permit retrieval of building components and assemblies for use in education exhibit. Indicate means of controlled deconstruction to protect existing adjacent assets.
 - 1. Shop drawings to indicate all temporary bracing and shoring equipment and layout.
 - 2. Submittals for manufactured shoring equipment.
 - 3. Drawings to be sealed by a licensed professional engineer.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, handle and protect materials in accordance Section 01 00 00- General Conditions.
- B. Packaging Waste Management:
 - 1. Separate corrugated cardboard in accordance with the Waste Management Plan and place in designated areas for recycling.
 - 2. Do not burn scrap at the project site.
 - 3. Fold up metal banding, flatten, and place in designated area for recycling

PART 2 PRODUCTS

2.1 MATERIALS

- A. Structural wood members: timber or built-up timber grade No. 1/2. See Section 061300 for wood grade reference standards and minimum standards for connectors.
- B. Post Shores: Multiprop (MP) by Peri USA or equal.

2.2 PERFORMANCE CRITERIA

- A. Ensure that materials, equipment and procedures:
 - 1. Safely support existing structure and construction live loads.
 - 2. Allow work to be accomplished.
 - 3. Minimize risk of damage to historic and archaeological elements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Before starting work, verify existing conditions and variations from original Contract Documents and notify Consultant.

3.2 PREPARATION

- A. Remove stored materials, services, and machinery installations from building. Store in area designated by Consultant .
- B. Before commencing shoring and/or displacement of structure, brace window and door openings.
 - 1. Remove, protect and store window sashes (if required per architectural drawings).
 - 2. Remove, protect and store doors (if required per architectural drawings).
 - 3. Protect components: glazing .
 - 4. Brace components: chimneys .
- C. Before beginning shoring, drain ground to support bracing, excavation and areas adjacent to foundation. Maintain area dry for duration of the Work.
- D. Before beginning shoring, protect materials, finishes and elements in direct contact with shoring components.
- E. Treat wood in contact with water in accordance with Section 061000

3.3 INSTALLATION – GENERAL

- A. Commence work in accordance with Contractor's Shoring Engineer and Consultant's instructions .

- B. Obtain approval from Consultant, before execution, for alteration to shoring system.
- C. Support individual elements that become loose during shoring installation.

3.4 SHORING OF STRUCTURES

- A. Compensate for unevenness of wall surfaces:
- B. Stabilize structure per Contractor's Shoring Engineer's shoring plan before cutting out existing load-bearing structure:
 - 1. Install temporary shores and braces to resist temporary gravity and lateral loading.

3.5 ADJUSTMENT

- A. Monitor shoring system performance and maintain its effectiveness by making adjustments , replacing or repairing damaged and weakened elements of system until final completion of project.
- B. If adjustments are major, exceed specified parameters and/or frequent, notify Consultant.

3.6 CONSTRUCTION WASTE MANAGEMENT

- A. Separate and recycle waste materials in accordance with the Waste Management Plan to the maximum extent economically possible.
- B. Separate wood waste in accordance with Waste Management Plan and place in designated areas in the following categories for recycling: Solid wood/ softwood/ hardwood, composite wood, and treated, painted, or contaminated wood.
- C. Set aside damaged wood and dimensional lumber off cuts for acceptable alternative uses (e.g. bracing, blocking, cripples, bridging, finger joining, or ties). Store this separated reusable wood waste convenient to cutting station and area of work.
- D. Do not burn scrap at the project site.
- E. Place materials defined as hazardous or toxic waste in designated containers.
- F. Seal and store emptied containers safely away from children for disposal.
- G. Use chemical products that are have zero or low VOC's.
- H. Dispose of surplus chemical and finishing materials in accordance with federal, provincial and municipal regulations.

END OF SECTION

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SECTION 024119 - SELECTIVE DEMOLITION AND ALTERATION WORK

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the selective demolition and alteration work as shown on the drawings and/or specified herein, including but not limited to the following:
 - 1. Alterations, selective demolition and removals as noted on drawings and as required to accommodate new construction.
 - 2. Removal of debris.
 - 3. Salvage of existing items to be reused or recycled.
 - 4. Protection of existing building and spaces to remain, and shoring of the structure as required for structural integrity and personal safety.
 - 5. Protection of existing curbs and sidewalks.
 - 6. Temporary coverage passageways.
 - 7. Alterations, selective demolition and removals of exterior facade where noted.
 - 8. Patching and refinishing of existing surfaces damaged as a result of this work.
 - 9. Protection.

1.3 RELATED SECTIONS

- A. Section 011000 – Summary
- B. Section 011400 – Work Restrictions
- C. Section 015000 – Temporary Construction Facilities and Controls
- D. Section 017419 – Construction Waste Management and Disposal
- E. Section 013591 – Historic Treatment Procedures
- F. Section 020342 - Removal and Salvage of Historic Construction Materials
- G. Alteration and removal requirements for mechanical and electrical work - Mechanical and Electrical Sections.

1.4 DEFINITIONS

- A. Consolidate: To strengthen loose or deteriorated materials in place.
- B. Design Reference Sample: A sample that represents Architect's prebid selection of work to be matched; it may be existing work or work specially produced for Project.
- C. Dismantle: To disassemble or detach a historic item from a surface, or a nonhistoric item from a historic surface, using gentle methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.
- D. Existing to Remain: Existing items that are not to be removed or dismantled, except to the degree indicated for performing required Work.
- E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.
- F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.
- G. Reinstall: To protect removed or dismantled item, repair and clean it as indicated for reuse, and reinstall it in original position, or where indicated.
- H. Remove: To take down or detach a non-historic item located within a historic space, area, or room, using methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.
- I. Repair: To correct damage and defects, retaining existing materials, features, and finishes while employing as little new material as possible. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
- J. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.
- K. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.
- L. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.
- M. Restore: To consolidate, replicate, reproduce, repair, and refinish as required to achieve the indicated results.
- N. Retain: To keep an element or detail secure and intact.
- O. Reversible: New construction work, treatments, or processes that can be removed or undone in the future without damaging historic materials unless otherwise indicated.
- P. Salvage: To carefully dismantle and protect removed or dismantled items. Items shall be reinstalled or returned to owner, as noted in the Drawings.
- Q. Stabilize: To provide structural reinforcement of unsafe or deteriorated items while maintaining the essential form as it exists at present; also, to reestablish a weather-resistant enclosure.

- R. Strip: To remove existing finish down to base material unless otherwise indicated.

1.5 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Items indicated for salvage, historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 - 1. Carefully dismantle and salvage in a manner to prevent damage and promptly return to Owner where directed.

1.6 QUALITY ASSURANCE

- A. The Contractor shall comply with the requirements of all applicable Federal, State and local safety and health regulations regarding the demolition of structures including ANSI/NFPD 241-Building Construction and Demolition Operations.
- B. The Contractor shall be responsible for any damage to any adjacent structures or buildings to remain.
- C. Qualifications: Qualifications of Contractor for work of this Section shall not be less than ten (10) years of field experience in work of this nature.
- D. Professional Engineering: The Contractor shall retain the services of a Professional Engineer licensed in the State of New York, who shall design and supervise installation of all underpinning and shoring.

1.7 SUBMITTALS

- A. Schedule of Demolition Operations: Submit demolition procedures and operational sequence for Architect's review prior to start of work. Submit a written request to Architect well in advance of executing any cutting or alteration which affects:
 - 1. The work of tying in or connecting to operational systems of the building, including electrical, mechanical and security systems.
 - 2. The work of the Owner or any separate Contractor.
 - 3. The structural value or integrity of any element of the project or of adjacent structures.
 - 4. The integrity or effectiveness of weather-exposed and moisture-resistant elements or systems.
 - 5. The efficiency, operational life, maintenance, or safety of operational elements or systems.
- B. Notice of Differing Conditions: Submit a written notification if, during the work of demolition and cutting, conditions are discovered which significantly vary from those shown on the drawings. Do not commence work until approval of Architect.
- C. Shop Drawings: Submit the following prior to starting work:

1. Submit for Architect's information shop drawings indicating location and typical construction details of temporary dustproof and weatherproof partitions.
2. Submit drawings of temporary structural shoring, bracing, framing or support, for the information of the Architect. Such drawings will be reviewed by the Structural Engineer for the effects of such temporary members on the structural elements to remain. These drawings shall include the reason for such temporary members, the location, the direction and magnitude of design reaction forces on existing structure, and details showing how these reaction forces will be applied to the existing structure.
 - a. Shop drawings shall be submitted with the Seal of the P.E. engaged by Contractor; P.E. must be licensed in the State of New York.
 - b. The Architect will receive acknowledgment for concepts shown. Such acknowledgments shall be of the concept only and not of actual capacities or structural design and shall not in any way diminish or limit the Contractor's responsibility for the quality and performance of the work and for protecting existing structures and facilities.

- D. Pre-Demolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces that might be misconstrued as damage caused by demolition operations. Submit before Work begins.

1.8 SPECIAL PRECAUTION

- A. Hazardous materials will be encountered during demolition operations including asbestos; comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution. Refer to Hazmat Drawing and Specifications.

1.9 JOB CONDITIONS

A. Condition of Structure

1. The Contractor for the work of this Section shall be held to have visited the site, examined the premises, determined for himself the existing conditions, character of equipment and facilities needed for the performance of the work, and all matters which may in any way affect the work before submitting a bid.
 - a. Information regarding existing construction or conditions is based on available record drawings which may or may not truly reflect existing conditions. Such information is included on the assumption that it may be of interest to the Contractor, but the Architect, Owner and their consultants do not assume responsibility for its accuracy or completeness.
 - b. Notify the Architect if, during the course of demolition, conditions are discovered which significantly vary from those shown on the drawings. Do not proceed until authorized by Architect.
2. The Contractor shall accept the condition of the site and structures as found. The Architect and Owner assume no responsibility for condition of site or structures nor the continuation of the condition existing at time of bidding or thereafter.

- B. Areas of building to be demolished or altered will be vacated and discontinued in use prior to the start of the work.

1. Surrounding areas of the building shall remain operational by the Owner.

C. Partial Removal

1. Items of savable value to the Contractor may be removed from the structure as the work progresses. Salvaged items must be transported from the site as they are removed.
2. Storage or sale of removed items on the site will not be permitted.

D. Explosives: The use of explosives will not be permitted.

E. Traffic

1. Conduct demolition operations and the removal of debris to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities.
2. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

F. Utilities

1. Refer to Division 22 and 26 of the specifications for special requirements concerning utilities and services.
2. Maintain any existing utilities required to remain; keep in service and protect against damage during demolition operations.
3. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to the governing authorities.
4. Disconnect and seal any abandoned utilities before starting demolition operations. Coordinate all work with local utility companies having jurisdiction.

1.10 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties. Notify warrantor before proceeding.
- B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

1.11 SCHEDULING

- A. Before commencing any alteration or demolition work, submit for review by the Architect, and approval of the Owner, a schedule showing the commencement, the order, and the completion dates for the various parts of this work.
- B. Before starting any work relating to existing utilities (electrical, sewer, water, heat, gas, fire lines, etc.) that will temporarily discontinue or disrupt service to the structures to remain, notify the Architect and the Owner 7 days in advance and obtain the Owner's approval in writing before proceeding with this phase of the work.

PART 2 PRODUCTS

- A. Regulatory Requirements: Comply with governing Provincial notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Galvanized Post Shores: Galvanized steel. Height minimum 3m. Minimum capacity 22 kN, safe working load rating 3:1. Industry name PS #0 through PS #4.
- C. Strapping: 1 1/2 inch (38mm) thick by 5 1/2 inches (140mm) wide wood boards, visual grading No. 1/No. 2 or better. Fasten with galvanized through bolts 3/8 inch (10mm) diameter minimum or SDS heavy duty screw connectors 1/4 inch (6.4mm) diameter minimum by Strongtie, or equal.

Refer to Part 3 - Execution, for balance of Product Requirements

PART 3 EXECUTION

3.1 EXAMINATION

- A. Preparation for Removal and Dismantling:
 - 1. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
 - 2. Inventory and record the condition of items to be removed and dismantled for reinstallation or salvage. Enter this information on the inventory of salvaged items. Record existing conditions by use of photographs.
 - 3. Before removal or dismantling of existing elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.
- B. Survey of Existing Conditions: Record existing conditions by use of measured drawings preconstruction photographs or video and templates.
 - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
 - 2. Requirement in subparagraph below is for treatment of historic facilities.
 - 3. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 PROTECTION

- A. Take full precautions to protect workmen, passersby or any other persons from falling debris and other hazards of demolition operations.
- B. Execute demolition work to ensure protection of existing portions of building to remain against damages which might occur from falling debris or other cause. Do not interfere with use of

adjacent occupied buildings and areas. Maintain free, safe passage to and from occupied adjacent buildings.

- C. Materials Placement: Do not load structure with weight that will endanger, overload or cause excessive deflection of the existing structure, or that will damage finished surfaces adjacent to and/or supported by the existing structure, except portions being removed.
- D. Construction Operations: Do not employ any construction operation, equipment or vehicles that will endanger, overload or cause excessive deflection of the existing structure, or that will damage finished surfaces adjacent to and/or supported by the existing structure, except portions being removed.
- E. Take precautions to guard against movement, settlement, damage, or collapse of any part of building, sidewalks, adjacent property or street passages; be liable for any such movement, settlement or collapse. If such damage does accidentally occur, Contractor shall repair promptly at no cost to Owner.
- F. Provide the necessary safeguards to prevent accidents, to avoid all necessary hazards and protect the public, the work and property at all times, including Saturdays, Sundays, and holidays.
- G. Be responsible for any and all damages which may arise or occur to any party whatsoever by reason of the neglect in providing proper lights, guards, barriers, or any other safeguards to prevent damage to property, life and limb.
- H. Make such explorations and probes as are necessary to ascertain any required protective measures before proceeding with demolition and removal. Give particular attention to shoring and bracing requirements so as to prevent any damage to existing construction.
 - 1. Provide interior and exterior shoring, bracing, or support to prevent movement or settlement or collapse of structures to be demolished and adjacent facilities to remain. The Contractor's Professional Engineer shall advise on bracing, shoring, underpinning, or other structural requirements. The Contractor shall bear all responsibility for prevention of movement or other structural fault.
 - 2. The Contractor shall restore, by repair or otherwise, the portions of structure or their contents altered by the Contractor in furtherance of his underpinning and support operations. Restoration shall be completed to the conditions which existed prior to the start of the work. Any damage caused by inadequate support shall also be restored by the Contractor at no cost to the Owner.
- I. Provide, erect and maintain catch platforms, lights, barriers, weather protection, warning signs, and other items as required for proper protection of the workmen engaged in demolition and alteration operations, occupants of the building, public and adjacent property. Any damage caused by the Contractor's operations shall be promptly repaired by the Contractor at no cost to the Owner.
- J. Provide and maintain temporary protection of the existing structure designated to remain where demolition, removal, and new work are being done, connections made, materials handled, or equipment moved.

- K. Take necessary precautions to prevent dust and dirt from rising. Protect unaltered portions of the existing building affected by the operations under this Section by dustproof partitions and other adequate means.
- L. Provide adequate fire protection in accordance with local Fire Department requirements.
- M. Do not close or obstruct walkways, passageways, or stairways. Do not store or place materials in passageways, stairs, or other means of egress. Conduct operations with minimum traffic interference.
- N. Be responsible for any damage to the existing structure or contents by reason of the insufficiency of protection provided.
- O. Erect temporary covered passageways at street level as required by authorities having jurisdiction.
- P. Promptly repair damages caused to adjacent facilities by demolition operations at no cost to the Owner.
- Q. Provide and maintain weather protection at exterior openings so as to fully protect the interior premises against damage from the elements until such openings are closed by new construction.

3.3 INSPECTION

- A. Verify that areas of demolition work are protected and temporary dustproof partitions have been installed.
- B. Verify that construction to be removed is not load bearing or has been properly braced, framed or supported.
- C. Inspect existing conditions of the project, including elements subject to damage or to movement during demolition and cutting.
- D. After uncovering work, inspect the conditions affecting the installation or performance of the work.
 - 1. Report differing or questionable conditions to the Architect in writing; do not proceed with the work until the Architect has provided further instructions.

3.4 PREPARATION

- A. Provide adequate temporary support as necessary to assure the structural value or integrity of the affected portion of the work
- B. Provide devices and methods to protect other portions of the project from damage.
- C. Pollution Controls
 - 1. Use water sprinkling, temporary enclosures, and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. Comply with governing regulations pertaining to environmental protection.
 - a. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

2. Clean adjacent structures and improvements of dust, dirt and debris caused by demolition operations. Return adjacent areas to condition existing prior to the start of the work.
3. Provide drainage for temporary water use.

3.5 DEMOLITION AND CUTTING

A. Selectively demolish existing construction in conformance with the drawings and these specifications.

1. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surface to receive installation of work by others and patching of finish surfaces.
2. Do all cutting or removal so as to leave neat, true, plumb and square edges, at edges to remain. Use carborundum or diamond saw equipment for cutting masonry, concrete and stone work, where edges or surfaces are to remain.
3. Do not cut or remove construction which might weaken or impair the structural integrity or strength of the structural framing or support systems which are to remain.
4. Demolish and remove materials as shown on the drawings without damage to the remaining parts of the structure or mechanical/electrical/utility systems.
5. Remove materials so as to not impose excessive loads in supporting walls, floors or framing and so as not to damage remaining undemolished portions of the structure.
6. Where portions of structures are to be removed, remaining portions shall be protected from damage and prepared to fit new construction. Damage to portions of structures to remain shall be repaired.
7. Reinforcing steel in existing structures shall be left in place, cleaned and aligned to provide tie with new work.
8. Existing waterproofing systems and flashings shall be carefully exposed and protected to maintain workable conditions of fitting new work with existing construction.
9. Proceed with demolition in a systematic manner.
10. Demolish concrete and masonry in small sections.
11. Remove structural framing members and lower to ground by means of hoists, derricks, or other suitable methods.

B. Shoring

1. Design, provide, erect and maintain necessary temporary shoring, bracing, framing, or support where load bearing structural or supporting members are removed or weakened by cuts or openings or are subject to damage from demolition operations, and otherwise as required for safety or to protect finish surfaces from damage.
2. Construction and adequacy of the shoring shall be the entire responsibility of the Contractor. Any damage caused by the inadequacy of the shoring or other support shall be the responsibility of the Contractor to remedy at no additional expense to the Owner.

3. Shoring and bracing shall remain until new structural framing and/or supports are installed. Coordinate operations fully with other trades.
4. Be ready at any time to promptly provide, add to, or strengthen temporary shoring, bracing, or support for existing work, in case existing construction begins to show signs of structural stress.

3.6 WORKMANSHIP STANDARDS FOR ALTERATION AND REMOVAL WORK

- A. Cut, remove, alter, temporarily remove and replace, or relocate existing work as required for performance of the work. Perform such work required with due care, including shoring and bracing.
- B. Coordinate patching involving the various trades whether or not specifically mentioned in the respective specification Sections.
- C. Materials or items demolished and not designated to become the property of the Owner or to be reinstalled shall become the property of the Contractor and shall be removed from the Owner's property.
- D. Execute the work in a careful and orderly manner, with the least possible disturbance to the public and to the occupants of the adjacent buildings.
- E. In general, demolish masonry in small sections. Where necessary to prevent collapse of any construction, install temporary shores, struts, or bracing.
- F. Materials to be removed by existing elevators shall be put in enclosed containers.
- G. Where existing equipment and/or fixtures are indicated to be reused, repair such equipment and/or fixtures and refinish to put in perfect working order. Refinish as directed.
- H. Cut out embedded anchorage and attachment items as required to properly provide for patching and repair of the respective finishes.
- I. Where utilities are removed, relocated or abandoned, cap, valve, plug, or by-pass to make complete and working installation.
- J. Restore existing pipe and duct coverings damaged by work under this Contract to original undamaged condition.
- K. Immediately restore to service and repair any damage caused by Contractor's workmen to existing pipe and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems which are not scheduled for discontinuance or abandonment.
- L. Upon completion of contract, deliver work complete. Damage that may be caused by Contractor or Contractor's workmen to existing structures designated to remain, grounds, and utilities shall be repaired by Contractor and left in as good condition as existed prior to damaging.
- M. Restore finish work of floors, walls, and ceilings remaining in place but damaged or defaced because of demolition or alteration work to condition equal that which existed at beginning of work under this Contract.

- N. Where alteration or removals expose damaged or unfinished surfaces or materials, refinish such surfaces or materials, or remove them and provide new or salvaged materials to make continuous surfaces uniform.
- O. Perform new work and restore and refinish existing work in conformance with applicable requirements of the specifications, except as follows:
 - 1. Materials for use in repair of existing surfaces, but not otherwise specified, shall conform to the highest standards of the trade involved, and be in accordance with approved industry standards, and shall be as required to match existing surfaces.
 - 2. Workmanship for repair of existing materials shall, unless otherwise specified, be equal to similar workmanship existing in or adjacent to the space where the work is being done.
 - 3. Installation of salvaged items where no similar items exist shall be done in accordance with the highest standards of the trade involved and in accordance with approved shop drawings.
- P. Materials or items designated to become the property of the Owner shall be as shown on the drawings. Remove such items with care and store them in a location at the site to be designated by the Owner.
- Q. Materials or items designated to be reinstalled shall be as shown on the drawings. Remove such items with care under the supervision of the trade responsible for reinstallation; protect and store until required. Replace materials or items damaged in their removal with similar new material.
- R. The existing building shall not be used as a work shop. Neither shall the furnishings or equipment in any room be used as work benches. Should any damage occur during the progress of the work to any furniture, fixtures, equipment, or appurtenances therein, such damage shall be repaired, replaced or made good by the Contractor without extra cost to the Owner.
- S. Where removing existing floor finish and base, remove all adhesive and leave floors and walls smooth and flush, ready to receive new finish.
- T. Finish new and adjacent existing surfaces as specified for new work. Clean existing surfaces of dirt, grease and loose paint before refinishing.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General
 - 1. Remove from the site debris, rubbish and other materials resulting from work of this Section.
 - 2. Burning of removed materials from demolished structures will not be permitted on the site.
- B. Removal: Transport materials removed from demolished structures and legally dispose of off site. Pay any and all fees associated with disposal work. Leave the site in an orderly condition to the approval of the Architect.
- C. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

- D. Remove debris from elevated portion of buildings by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

3.8 CLEANING UP

- A. Remove debris as the work progresses. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Maintain existing premises in a neat and clean condition.

END OF SECTION

SECTION 02 82 00

ASBESTOS ABATEMENT

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Asbestos abatement work to be executed to facilitate the renovation work for New York State Office of Parks, Recreation & Historic Preservation (NYSPR), John Jay Homestead State Historic Site (Project), located at 400 Jay Street, Katonah, New York. The work will consist of the removal and disposal of asbestos containing, assumed asbestos-containing, and asbestos-contaminated debris/materials at the Bedford House.
- B. The abatement work shall include but not be limited to the removal of the following:

ASBESTOS ABATEMENT SCHEDULE				
Work Area	Material Description	Location(s)	Quantity (SF / LF)	Removal Method
Bedford House Exterior	Assumed Asbestos-Containing Exterior Vapor Barrier	Exterior Elevations	6,000 SF	NYSDOL ICR 56 Subpart 11.6 Exterior Non-Friable Abatement Procedures
	Assumed Asbestos-Containing Chimney Components	Roof	400 SF	NYSDOL ICR 56 Subpart 7.11 (f) (1) Tent/Glove bag Procedures
	Assumed Asbestos-Containing Multi-Layer Roofing Composite		360 SF	NYSDOL ICR 56 Subpart 11.6 Exterior Non-Friable Abatement Procedures
	Assumed Asbestos-Containing Flashing to Skylight		24 SF	
Bedford House Basement	Assumed Asbestos-Containing Braided Wire Insulation	Throughout Basement	150 LF	NYSDOL ICR 56 Subpart 11.8 Wrap and Cut Removal Procedures
	Asbestos-Containing Corrugated Pipe Insulation and Associated Jacket	Basement Room B-17	1 LF	NYSDOL ICR 56 Subpart 11.3 Minor Asbestos Projects or Minor Size Regulated Abatement Work Area Procedures
Bedford House Basement	Assumed Asbestos-Containing Boiler Components	Boiler Room	40 SF	NYSDOL ICR 56 Subpart 7.11 (f) (1) Tent/Glove bag Procedures
	Assumed Asbestos-Containing Pipe Insulation	Throughout Basement Crawl Spaces and Pipe Chases	150 LF	
	Assumed Asbestos-Containing Sub Grade Waterproofing Tar	Room B-16, B-17, B-18, and B-12	235 SF	NYSDOL ICR 56 Subpart 11.7 Non-Friable Flooring and/or Mastic Removal Procedures

ASBESTOS ABATEMENT SCHEDULE				
Work Area	Material Description	Location(s)	Quantity (SF / LF)	Removal Method
Bedford House First Floor	Assumed Asbestos-Containing Pipe Insulation	Wet Walls and Chase Throughout First Floor	80 LF	NYSDOL ICR 56 Subpart 7.11 (f) (1) Tent/ Glove bag Procedures
	Assumed Asbestos-Containing Braided Wire Insulation	Throughout First Floor	250 LF	NYSDOL ICR 56 Subpart 11.8 Wrap and Cut Removal Procedures
	Asbestos-Containing 12"x12" Tan Vinyl Floor Tile and Associated Mastic	Room 118	80 SF	NYSDOL ICR 56 Subpart 11.7 Non-Friable Flooring and/or Mastic Removal Procedures
Bedford House Second Floor	Assumed Asbestos-Containing Pipe Insulation	Wet Walls and Chase Throughout Second Floor	35 LF	NYSDOL ICR 56 Subpart 7.11 (f) (1) Tent/ Glove bag Procedures
	Assumed Asbestos-Containing Braided Wire Insulation	Throughout Second Floor	250 LF	NYSDOL ICR 56 Subpart 11.8 Wrap and Cut Removal Procedures
	Asbestos-Containing 12"x12" Tan Vinyl Floor Tile and Associated Mastic	Second Floor Bathroom	80 SF	NYSDOL ICR 56 Subpart 11.3 Minor Asbestos Projects or Minor Size Regulated Abatement Work Area Procedures
Bedford House Third Floor	Assumed Asbestos-Containing Pipe Insulation	Wet Walls and Chase Throughout Third Floor	25 LF	NYSDOL ICR 56 Subpart 11.8 Wrap and Cut Removal Procedures
	Assumed Asbestos-Containing Braided Wire Insulation	Throughout Third Floor	250 LF	
Notes: SF = Square Feet LF = Linear Feet				

- C. The Contractor shall be aware of all conditions of the Project and is responsible for verifying quantities and locations of all Work to be performed. Failure to do so shall not relieve the Contractor of the obligation to furnish all labor and materials necessary to perform the Work.
- D. All Work shall be performed in strict accordance with the Project Documents and all governing codes, rules, and regulations. Where conflicts occur between the Project Documents and applicable codes, rules, and regulations, the more stringent shall apply.
- E. Working hours shall be as required and approved by the Owner. Asbestos abatement activities including, but not limited to, work area preparation, gross removal activities, cleaning activities, waste removal, etc. may need to be performed during 'off-hours' (including nights and weekends). In addition, multiple mobilizations may be required to perform the work identified in this project. The Contractor shall coordinate and schedule all Work with the facility and Owner's representative.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. The following Sections/Divisions contain requirements that relate to the Work of this Section:
 - a. Section 02 83 04 – Incidental Disturbance of Lead Containing Materials
 - b. Section 02 86 00 – Identification and Disposal of Hazardous Waste
 - c. Section 02 87 00 – Biohazard Remediation

1.03 REQUIREMENTS AND RESTRICTIONS

- A. The Contractor shall furnish proof that employees are New York State Department of Labor (NYSDOL) Certified Asbestos Handlers and have had instruction on the dangers of asbestos exposure, on respirator use, decontamination and O.S.H.A. regulation.
- B. All removal procedures shall be conducted by workers specifically trained in such procedures.
- C. Work clothes shall consist of full-body coveralls, disposable head covers, boots or sneakers and respiratory protective equipment as required. Regulation eye protection and hard hats shall be available as appropriate.
- D. Coveralls shall be of paper disposable type.
- E. Respiratory protection for workers shall be provided by the Contractor as required by current O.S.H.A. and DEP Regulations.
- F. The Contractor shall furnish documentation of successful performance in asbestos removal. This shall include name and address of purchaser of service and location of work performed.
- G. The Contractor shall have in their possession at all times, one copy at their office and one copy shall be posted at the job site regarding O.S.H.A. Regulation 1926.58, Asbestos and Environmental Protection Agency 40 CFR Part 61, sub part A&M National Emission Standard for Asbestos, Stripping Work Practices and Disposal of Asbestos Waste.
- H. The Contractor shall be required to carry asbestos insurance when removing asbestos and throughout the entire process and assume full liability for failure to comply with N.Y.S. DOL and O.S.H.A. regulations.
- I. The Contractor shall notify the Asbestos Control Bureau required by that agency but in no case less than 10 calendar days prior to start of work.
- J. The Contractor shall be responsible for obtaining all required notifications/permits to perform the work specified, including those required by the N.Y.S. DOL, and U.S. EPA.

- K. The Contractor shall obtain written authorization to abate materials listed as “assumed asbestos-containing” on the contract documents prior to abatement. The Owner reserves the right to have assumed materials tested (performed by the Environmental Consultant) prior to engagement. Materials which are found to be non-asbestos may be removed from the Contractor's overall scope and a credit issued.

1.04 NOTES

- A. During abatement air monitoring is not part of the work of this Contract. It shall be performed by an independent firm to be selected and paid for by the Owner. The Contractor shall coordinate his work with the air monitoring firm, with the Owner's cooperation.
- B. Asbestos when removed and carted away from the Facility shall not be transferred from one vehicle to another except at a transfer-station certified by the New York State Department of Environmental Conservation.
- C. Once work has begun at a particular area, it shall proceed at a steady rate until all asbestos removal at that location is completed.
- D. Keep a daily log to be inspected by the Inspector. The log shall comply with the DOL Rules and Regulation, Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York (12 NYCRR Part 56). Sign the Contractor's Log Book in the Construction Manager's field office, immediately upon arrival at the work site.

1.05 CODES

- A. All work shall be in accordance with the latest rules and regulations of all municipal and other public agencies having jurisdiction.
- B. All asbestos removal and disposal to be performed under this Contract shall be in accordance with all applicable Federal, State and City regulations. Applicable regulations, guidelines and standards are to include, but are not limited to:
 - a. Occupational Safety and Health Administration (OSHA) U.S. Dept. of Labor-Asbestos Regulations 29 CFR 1926 and 1910.
 - b. The U.S. Environmental Protection Agency (EPA) Regulation for Asbestos 40 CFR 61 Subparts A & M.
 - c. The New York State Department of Labor Industrial Code - Rule 56.
 - d. N.Y. State Environment Conservation Law Article 27, Title 3 and 15.

1.06 GENERAL CONDITIONS

- A. Violations to asbestos regulations governing this abatement will not be tolerated. At the Owner's discretion, the Asbestos Handler Supervisor of this project will be required to be replaced.
- B. The Contractor shall post at the job site the following regulations at the job site:
 - a. NY State Industrial Code Rule 56,
 - b. US EPA Regulations for Asbestos, 40 CFR 61 Subparts A and M,
 - c. OSHA 29 CFR 1926.1101.
- C. Carry asbestos insurance throughout the entire abatement process and assume full liability for failure to comply with Federal, State and local regulations.

- D. Furnish and post approved signage indicating that asbestos work is to be conducted within the buildings. Signs shall be posted in the lobby of the buildings addressing the dates in which each floor will be abated. This notification is to be approved by Development Management.
- E. Asbestos abatement activities are to be monitored by an Inspector and/or a representative on behalf of the Owner acting as an Asbestos Project Monitor. The Asbestos Handler Supervisor shall adhere to the direction of the Inspector and Project Monitor.

1.07 SPECIAL CONDITIONS

- A. Prepare a schedule of work in consultation with Owner. The schedule is to be followed as closely as possible. Notify the Owner a minimum of 72 hours in advance of work scheduled in common/egress areas. Notices shall be in both English and Spanish.
- B. Prior to the work place preparation, the Asbestos Contractor shall coordinate with the general contractor (GC), Building Owner and Facility Personnel any and all security and egress issues that may apply to the overall protection and safety of the building and occupants.
- C. Coordinate the asbestos abatement activities with the overall project schedule and demolition activities.
- D. For the purposes of this specification, it is understood that the buildings impacted as part of this project will be un-occupied for the duration of work.
- E. The Contractor shall provide all electrical and utility services needed to perform the work specified. It is understood that utility services for this site may be limited to the existing campus Power Plant (only).
- F. The Contractor shall coordinate and furnish all necessary equipment to facilitate the asbestos abatement work of this contract; this includes (but is not limited to) scaffolding (for roof and elevated utilities abatement, etc.) and ladder/aerial lift access. Required equipment/materials are to be considered and incorporated into the contractor's base cost.
- G. The Contractor shall secure the facility at the end of each work shift including any/all openings utilized for negative air pressure unit(s) exhaust and make up air inlets. The methods used to secure the facility shall not impede or hinder negative air unit efficiencies or make up air necessary to meet the requirements of 12 NYCRR Part 56, § 56-7.8 Engineering Controls.
- H. The Contractor shall utilize the provisions of 12 NYCRR Part 56, Subpart 56-11 Special Projects for each structure included in this Contract.
- I. All materials and debris associated with the Neponsit Main Hospital structure shall be handled and disposed of as asbestos waste unless otherwise instructed/approved by the onsite NYSDOL Asbestos Project Monitor.
- J. The Contractor shall obtain all necessary permits/notifications needed to perform the work specified, including NYSDOL and USEPA.
- K. All methods of work which engage or modify structural elements, or practices which have the potential to alter the structural integrity of the building are to be designed by a New York State Professional Engineer (PE) employed by the Contractor. Signed and Sealed documents are to be supplied to the Owner for review and approval.

1.08 FILINGS AND CERTIFICATION

- A. The Contractor shall be responsible for maintaining current project filings with regulatory agencies for the duration of the project.

- B. The Contractor shall pay the filing fees for notification of asbestos work as required by the New York State Department of Labor, Division of Safety and Health. This cost shall be incorporated into the Contractor's bid.
- C. The Contractor shall utilize the provisions and removal methods depicted in Section 1.01(B) for corresponding asbestos-containing, assumed asbestos containing, and asbestos-contaminated materials. If the Contractor elects to utilize alternate methods, approval from the Owner and/or Owner's Environmental Consultant must be sought in writing.
- D. The Contractor shall notify N.Y.S. Department of Labor ten (10) days prior to start of work. He shall also notify the nearest E.P.A. office before removal work begins and obtain all necessary permits.
- E. The Contractor shall coordinate the filing of this job with DOL. The Owner will sign the forms as the Owner, however actual filing shall be done by the Contractor.

1.09 ASBESTOS WORK PLAN

- A. The Contractor shall develop and submit a Detail Asbestos Work Plan to the Owner. It will include the following:
 - a. LOCATION – Name of Building and Address as per filing (DOL & EPA notification)
 - b. GENERAL INFORMATION – Owner, CM Firm Name, Prime Contractor Company Name, Asbestos contractor company name, and Air-monitoring Contractor Company Name.
 - c. SCHEDULE – Tentative Start and tentative completion date.
 - d. DEVELOPMENT LOG BOOK – Location of sign in/out development log book for contractors (construction trailer, development superintendent office or manager, etc.) and who will sign-in and out.
 - e. WORK DESCRIPTION AND PROCEDURE – Provide work area location & quantities. List abatement procedure being used (H Series Drawings).
 - f. POSTING – List and identify locations of all necessary and required postings by law.
 - g. DECONTAMINATION UNITS – How many, location type, (pop-up, wood structure, trailer etc.) and when they will be broken down and demobilized etc.
 - h. WASTE – Description of waste route after it is bagged, container on site (waste condition daily log document), pickup information and waste receipt acknowledge or manifest.
 - i. UTILITIES – Brief description from where electric power and water will be collected and GFCI location. Name of electrical contractor and license number.
 - j. CERTIFICATES – List licenses and certificates hold by workers, such as NYSDOL, Federal EPA, OSHA, etc. needed to perform work.
 - k. PERMITS AND AUTHORIZATIONS – List all permits, notifications, and authorizations needed to properly execute asbestos abatement work including NYSDOL, Federal EPA, OSHA, etc.
 - l. SAFETY – List and describe PPE for workers and visitors. Brief description of scaffold and safety line procedures including Safety Engineering stamp and daily report authorization where applicable as per NYCDOB codes and regulations.
 - m. RESPIRATORY PROTECTION PROGRAM – List name of company respiratory protection program administrator.

- n. OTHERS – List or briefly explain any additional relevant information, document or procedure necessary to maintain asbestos abatement work within the asbestos regulations and contract specification compliance (2 phase abatement work, etc.).

B. DOCUMENTS:

- a. Asbestos building occupant notification to be posted (prior to abatement in accordance with 12 NYCRR 56 Subpart 3.4(b)(1))
 - b. NYSDOL Notification
 - c. USEPA Notification
 - d. Permits, licenses and insurance for asbestos company, waste hauler and disposal site.
 - e. Written respiratory protection program (include title page and List Program Administrator Only)
 - f. Detailed emergency fire exit plan with diagram showing evacuation route for workers
 - g. Sample of original waste hauler manifest with all general applicable information typed.
- C. If at any time the Owner's representative or any agency having jurisdiction decides that work practices are violating pertinent regulations, or endangering workers, he will immediately notify the Contractor's Asbestos Handler Supervisor that operations will cease until all corrective action is taken.

1.10 INSURANCE

- A. In addition to the general insurance requirements (see General Conditions), the Contractor shall carry asbestos insurance when removing asbestos. In addition, the contractor shall assume full liability for any failure to comply with NYC DOL and OSHA regulations. The Contractor shall carry the following Minimum asbestos related insurance coverage (for all investigators, Handlers and Supervisions):
- a. Five million dollars (\$5,000,000.00) for each occurrence.
 - b. Minimum aggregate coverage of five million dollars (\$5,000,000.00).
 - c. No "Sunset - Clause".

1.11 MISCELLANEOUS

- A. If at any time the Owner's representative or any agency having jurisdiction decides that work practices are violating pertinent regulations, or endangering workers, he will immediately notify the Contractor's Asbestos Handler Supervisor that operations will cease until all corrective action is taken.

1.12 PROTECTION OF PROPERTY

- A. Where work is performed, the Contractor shall be held fully responsible for all damage to property belonging to the Owner. Any equipment furnished under this Contract and any property of the Owner damaged by this Contractor or his employees shall be restored to its original condition or replaced without cost of the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Materials, including chemical solutions, shall be delivered to the job site in their original containers sealed by the manufacturer. Materials in opened containers shall not be used on this project. Containers shall be clearly labeled with manufacturer's name, product identification and lot numbers, and shall be stored out of the weather in a protected location in their original, sealed containers. Where applicable, materials shall be mixed according to manufacturer's directions and specifications.
- B. The following list indicates approved materials for use with each type of abatement work. Request(s) to use an equivalent product(s) shall be made prior to the filing of this project. All required approvals shall be obtained prior to the use of the product(s).
 - a. Spray Glue
 - i. Bull-Tack Adhesive Spray by Bullseye Environmental Corporation, (215) 486-9001
 - ii. Lynx Tack Adhesive Spray by ARAMSCO, (800) 767-6933
 - b. Foam
 - i. Bull Foam by Twin-Chemicals, Inc., (800) 442-4958
 - ii. Pronto Extra-Foam by Twin-Chemicals, Inc., (800) 442-4958
 - iii. IDC Hydro Foam by IDC Corporation, (800) 327-8432
 - iv. Antec Biofoam by Antec International Ltd, distributed by Vetoquinol Canada Inc., (450) 586-2252
 - v. Chemsafe 600 Fibre Suppression by ARAMSCO, (800) 767-6933
 - c. Wetting Agent/Surfactants
 - i. Foster Asbestos Removal Surfactant 32-90 by Specialty Construction Brands, Inc. (847) 358-9500
 - ii. Control Wetting Agent by Grayling Industries Inc, (800) 635-5053
 - iii. Serpi-Factant Concentrate by W.R. Grace, (866) 333-3726
 - iv. Chem-Safe Gold by ARAMSCO, (800) 767-9633
 - d. Lockdown Encapsulant
 - i. ChemSafe 500 (White only) by ARAMSCO, (800) 767-9633
 - ii. Foster Asbestos Removal Encapsulant 32-60 by Specialty Construction Brands, Inc. (847) 358-9500.
 - iii. Serpiflex White by W.R. Grace, (866) 333-3726
 - iv. Serpiflex Shield Formula # 5 by W.R. Grace, (866) 333-3726
 - v. Control Lockdown Encapsulant by Grayling Industries, Inc, (800) 635- 1551
 - e. Mastic Remover
 - i. "Bean-e-doo", Franmar Chemical, Inc., (309) 452-7526
 - ii. 200-Plus VLO, AS895, Abatement Technologies, Inc., (800) 634-9091
 - iii. AMW-98, American Coatings Corp., (954) 790-7620
 - iv. M3205, Twin-Chem, Inc., (800) 442-4958
 - v. No Bull 200 Flash No Odor, Bullseye Environmental Inc., (800) 692-8557
 - vi. Chemsafe Clear, ARAMSCO, (800) 767-6933
 - f. Self-Leveling Underlayment Concrete
 - i. Ardex K-15 (with E-25 Resilient Emulsion), Ardex Engineering Cements, (724) 203-5000

- g. General
 - i. Polyethylene Sheeting (6-mil thick)

PART 3 – EXECUTION

3.01 GENERAL PROVISIONS

- A. The Contractor shall schedule his work with the Owner prior to start of work.
- B. During the work of this Contract, the Contractor shall take all necessary precautions to protect the property of the Owner.
- C. Electrical and water services are not available for use at the subject properties.
- D. The Contractor shall provide and pay for all electric power required to perform the work of this Contract. The Contractor shall provide all wiring, extension outlets, lights, etc. and make all electrical connections as are required, and as approved by the Owner. All electrical work shall be done by or under the supervision of a Licensed Electrician.
- E. The Contractor shall furnish proof that his employees are New York State Department of Labor Certified Asbestos Handlers and have had instruction on: the dangers of asbestos exposure, respirator use, decontamination, and OSHA regulation.
- F. The Contractor shall furnish documentation of successful performance in asbestos removal. This shall include name and address of purchaser of service and location of work performed.
- G. The Contractor shall include all requirements specified by OSHA, the Owner, and the Manufacturers. Materials shall be applied according to Manufacturer's directions and specifications, subject to approval and modification by the Owner.

3.02 WORK REQUIREMENTS AND RESTRICTIONS

- A. Once asbestos removal work has begun at a particular floor/location, it shall proceed at a steady rate until all work at that location has been completed.
- B. Glove bag procedures shall be conducted by workers specifically trained in such procedures.
- C. Work clothes provided by the Contractor shall consist of paper disposable type full body coveralls, rubber gloves and disposable head covers, boots or sneakers and respiratory protective equipment, as required by OSHA and/or any DEP regulations. Eye protection and hard hats shall be available and used as appropriate. In addition, full body "TYVEK" disposable coveralls or approved equal, cotton gloves and towels shall be provided by the Contractor on as needed basis for use by the Owner's personnel inspecting the work area. This added requirement shall be included and made part of the Contractor's bid price.
- D. Asbestos, when removed and carted away from the site, shall not be transferred from one vehicle to another except at a transfer station certified by DEP.

3.03 ASBESTOS REMOVAL PROCESS

- A. Removal Method
 - a. At all such locations, the Contractor need not provide full enclosure (in accordance with 1-120) unless it is specifically required by DOL., EPA or other applicable regulations.
- B. Pre-Removal Preparations
 - a. Furnish, install and maintain for the duration of the contract work all required showers, barriers, barricades, caution signs and other temporary construction necessary for the proper completion of the work in compliance with all applicable regulations.

- i. In compliance with OSHA regulations, the Contractor shall furnish and post approved signs indicating that asbestos work is being done in the area. Signs shall be posted on door leading to the work area.
- ii. Critical barriers shall not exceed 32 ft2 unless hard wall (studded) isolation barriers are installed.
- iii. In a pre-designated area, the Contractor shall set up a decontamination facility which will house a changing room, shower room and equipment room, separated by air locks.
- iv. All movable objects shall be removed from the work area by the Contractor prior to removal of asbestos unless instructed to dispose of as asbestos contaminated waste per the Contract Drawings.
- v. Access to each active abatement area must be limited by the installation of a temporary plywood barrier with a lockable door installed at the stairwell and elevator entrance to the floor.
- vi. A fully functional remote/attached decontamination enclosure system (DECON) shall be constructed prior to any work area preparation. The water and electrical sources for the DECON shall be supplied by the Contractor. Waste water disposal in a facility sink is prohibited. Where the first floor is separated by hard barriers into more than one work area, a separate DECON is required for each work area.
- vii. The Owner's Inspector and/or the Project Monitor is required to approve the DECON following the inspection by the Asbestos Handler Supervisor and prior to work area preparation.
- viii. The airlock is to be constructed with two curtained doorways separated by a distance of three (3) feet. Each curtained doorway is to consist of three overlapping sheets of poly with weighted flaps.
- ix. Establish and maintain the required negative pressure and air changes per hour prior to performing gross removal. Negative air units shall be spec'd at a minimum 2,000 CFM capacity. The Contractor shall calculate the number of negative air units required and shall coordinate the exhaust to the exterior of the structure (when allowable) with the Owner's Environmental Consultant.
- x. The Owner's Inspector and/or the Project Monitor is required to approve the pre-abatement work area preparation following the inspection by the Asbestos Handler Supervisor and prior to asbestos removal.

3.04 ASBESTOS REMOVAL

- A. Asbestos-containing materials shall be removed in accordance with the Contract Documents and the approved Asbestos Work Plan. Only one type of ACM shall be abated at a time within a Work Area. Where there are multiple types of ACM requiring abatement, Code Rule 56 procedures for sequential abatement shall be followed.
- B. Sufficiently wet asbestos materials with a low pressure, airless fine spray of surfactant to ensure full penetration prior to material removal. Re-wet material that does not display evidence of saturation.
- C. One Worker shall continuously apply amended water while ACM is being removed.

- D. Perform cutting, drilling, abrading, or any penetration or disturbance of asbestos containing material in a manner to minimize the dispersal of asbestos fibers into the air. Use equipment and methods specifically designed to limit generation of airborne asbestos particles. All power operated tools used shall be provided with HEPA equipped filtered local exhaust ventilation.
- E. Upon removal of ACM from the substrate, the newly exposed surfaces shall be HEPA vacuumed and/or wet cleaned. Surfaces must be thoroughly cleaned using necessary methods and any required solvents to completely remove any adhesive, mastic, etc.
- F. All removed material shall be placed into 6 mil plastic disposal bags or other suitable container upon detachment from the substrate. Cleanup of accumulations of loose debris or waste shall be performed whenever there is enough accumulation to fill a single bag or container and minimally at the end of each work shift.
- G. Large components shall be wrapped in two layers of 6 mil polyethylene sheeting. Sharp components likely to tear disposal bags shall be placed in fiber drums or boxes and then wrapped with sheeting.
- H. Power or pressure washers are not permitted for asbestos removal or clean-up procedures unless approved in a Site-Specific Variance.
- I. All construction and demolition debris are considered to be contaminated with asbestos (unless otherwise specified by the Owner's Environmental Consultant) shall be handled and disposed of as asbestos waste.
- J. The use of metal shovels, metal dust pans, etc. are not permitted inside the work area.
- K. All equipment shall be cleaned of asbestos material prior to leaving the work area.
- L. The Contractor shall coordinate with the Owner locations at which asbestos waste containers can be stored on the premise. The Contractor shall determine the total container amounts needed to facilitate the disposal of asbestos wastes specified.
- M. Air monitoring equipment must be in place and operating prior to starting abatement work.

3.05 CLEAN-UP AND GUARANTEE

- A. If clearance air samples are reported greater than 0.009 f/cc or overloaded, a re-cleaning of the containment and air lock is required prior to re-testing (as applicable). This cleaning shall be repeated until successful clearance has been achieved.
- B. If outside the work area air samples (during abatement monitoring) are reported greater than 0.009 f/cc, a re-cleaning of the area outside of the containment is required prior to re-testing. This cleaning shall be repeated until successful clearance has been achieved.
- C. After the final cleaning operation, conduct a visual inspection to ensure dust-free conditions. Air sampling and analysis are to be performed by others.

3.06 DISPOSAL OF ASBESTOS MATERIAL AND RELATED DEBRIS

- A. All asbestos debris and other debris shall be removed from the premises prior to the end of the work shift. At no time will asbestos debris be allowed to be stored on site once the Contractor has left site.
- B. Building specific generator labels shall include the building location address, city and state, the date of abatement, the abatement contractor's name, and the facility name.
- C. Generator labels are to be affixed to the waste bags prior to the bags leaving the buildings. Labels are not to be affixed to the bags at the waste container or waste hauling truck.

- D. All asbestos waste is to be transported directly to a transfer station or the landfill. No asbestos waste is to be stored or transferred to another location prior to transport to a transfer station or the landfill.
- E. No asbestos waste is to be removed from site without a properly documented waste manifest.
- F. All asbestos waste shall also be required to comply with U.S. Environmental Protection Agency Regulations, Title 40, Part 61, Sub-part A & B (40 CFR A & B) and OSHA Regulations (29 CFR 1910) for Collecting, Packaging, Transporting and Disposing of Asbestos.
- G. The transfer station, if the asbestos Contractor utilizes any, shall be DEC approved.
- H. Only D.E.P. approved dump sites shall be used.
- I. Workers unloading the sealed bags and machinery operators shall wear respirators when handling materials at the disposal site.
- J. Dump the bags at the burial site, in accordance to all applicable DEP Rules and Regulations.
- K. Furnish copies of the Waste Manifest transmittal to the Contract Inspector.

3.07 ASBESTOS WASTE MANIFESTS

- A. All asbestos waste shall be properly manifested prior to removal from the Owner's property.
- B. Waste transporting shall follow all provisions of the Environmental Conservation Law, Title 3, of Article 27.
- C. Copies of the manifest, after all asbestos has been removed from specifying the location, and indicated where the waste will be transported, shall be given to the Owner's Inspector and/or the Project Monitor.
- D. A final copy signed by the landfill is to be submitted to the Owner.

3.08 INDEPENDENT AIR MONITORING AND AIR CLEARANCE

- A. An independent Contractor selected and paid for by the Owner shall conduct air monitoring during and at the completion of the asbestos removal.
- B. Air clearance results will be reported to the Owner and posted daily.
- C. No work area containment/critical barriers can be removed until approval is given to the Contractor by the Owner's Inspector or the Project Monitor.
- D. Air sample results to be used as clearance cannot be reported by the laboratory directly to the Contractor.

3.09 MISCELLANEOUS

- A. If at any time the Owner's representative decides that work practices are violating pertinent regulations or endangering workers, he will immediately notify in writing the on-site Contractor's representative that operations will cease until all corrective action is taken.
- B. The Contractor will be required to keep a daily log to be inspected by the Owner. Only EPA approved dump sites will be utilized for final dumping.

3.10 CLEANING AND DISPOSAL

- A. During the performance of work, the Contractor shall take every precaution to keep the work areas free from dirt and rubbish. Motors, gauges, electrical components, etc., shall be protected from dirt produced by this work.

- B. Debris shall be removed from the premises as the work progresses and the work areas shall be left free of dirt and debris before final acceptance of this installation.
- C. Except as specified elsewhere herein, all equipment removed by this Contractor shall become his property which he shall remove from the premises and legally dispose of.
- D. PROTECTION OF APPARATUS
- E. Upon final acceptance the Contractor shall be held fully responsible for all damage to apparatus and property regardless of whether furnished by him or belonging to the Owner. Any equipment furnished under this Contract and any property of the Owner damaged by this Contractor or his employees shall be restored to its original condition or replaced without cost to the Owner

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SECTION 02 83 04

INCIDENTAL DISTURBANCE OF LEAD CONTAINING MATERIALS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section specifies the requirements for the prevention and management of lead dust, lead paint chips, or lead-contaminated debris from work areas and areas adjacent to them, protection of workers, post-work cleaning, pre-disposal testing and appropriate disposal of removed material for the New York State Office of Parks, Recreation & Historic Preservation (NYSPR), John Jay Homestead State Historic Site (Project), located at 400 Jay Street, in Katonah, New York. All painted surfaces are assumed to contain a detectable concentration of lead.

1.02 REFERENCES

- A. New York State Department of Environmental Conservation (DEC) 6NYCRR:
 - 1. Part 360 Solid Waste Management Facilities.
 - 2. Part 364 Waste Transporter Permits.
 - 3. Part 370 Hazardous Waste Management System-General.
 - 4. Part 371 Identification and Listing of Hazardous Wastes.
 - 5. Part 372 Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities.
 - 6. Part 373 Hazardous Waste Management Facilities.
- B. New York State Department of Transportation (DOT): Follow all regulations of 49CFR Part 100 through 199.
- C. Occupational Safety and Health Administration (OSHA): Lead Exposure in Construction: Interim Final Rule 29 CFR 1926.62.
- D. U.S. Department of Housing and Urban Development (HUD): Guidelines for evaluation and control of Lead based paint hazards: Title Ten of Housing and Community Act of 1992.
- E. U.S. Environmental Protection Agency (EPA): Resource Conservation and Recovery Act (RCRA) Section 3004 Hazardous and Solid Waste Amendments.
- F. U.S. Environmental Protection Agency (EPA): Toxicity Characteristics Leaching Procedure EPA Method 1311.

1.03 DEFINITIONS

- A. Authorized Personnel: Owner or Owner's Representative, and all other personnel who are authorized officials of any regulating agency, be it State, Local, Federal or Private entity who possess legal authority for enforcement or inspection of the work.

- B. Containment: The enclosure within the building which establishes a contaminated area and surrounds the location where lead remediation is taking place and establishes a Lead Control Work Area.
- C. Floor Surface Clearance Criteria: Shall be determined and established by an independent testing lab hired by the Owner or Owner's Representative, conforming to all standards set forth by all authorities having jurisdiction, mentioned in the references, and issue the certification of cleaning. At a minimum no single post work lead wipe sample test values shall have reading levels greater than the levels established by pre-work wipe sampling test values, or greater than 40 mg/ft². Record levels in mg/ft².
- D. Fixed Object: Mechanical equipment, electrical equipment, fire detection systems, alarms, and all other fixed equipment, furniture, fixtures or other items which cannot be removed from the work area.
- E. HEPA: High Efficiency Particulate Absolute filtration efficiency of 99.97 percent down to 0.3 microns. Filtration provided on specialized vacuums and air filtration devices to trap particles.
- F. Lead Based Paint (LBP): Paints or other surface coatings that contain lead equal to or greater than 1.0 milligrams per square centimeter or 0.5 percent of lead by weight.
- G. Lead Containing Paint (LCP): Any paint or surface coating with a detectable concentration of lead.
- H. Lead Dust Control Work Area: A cordoned off area with drop clothes or an enclosed area or structure with containment to prevent the spread of lead dust, paint chips, or debris from lead-containing paint disturbance operations.
- I. PPE: Personal Protective Equipment.

1.04 ABBREVIATIONS

- A. ASTM: American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103
- B. CFR: Code of Federal Regulations
Government Printing Office
Washington, DC 20402
- C. DOT: Department of Transportation
Main Office, 50 Wolf Road
Albany, NY 12232
- D. NIOSH: National Institute for Occupational Safety and Health
Building J, N.E. Room 3007
Atlanta, Georgia 30333
- E. OSHA: Occupational Safety and Health Administration
200 Constitution Avenue
Washington, DC 20210

- F. USEPA: United States Environmental Protection Agency
401 M Street SW
Washington, DC 20460

1.05 SCOPE OF WORK

- A. The work shall consist of managing lead-containing paint, lead-based paint, and/or assumed lead-based paint as part of this restoration project including preparation for re-painting.
- B. Proper Clean-up of work area and adjacent surfaces/areas.
- C. Legal disposal of all waste generated.
- D. Without limiting the generality of the foregoing, this work shall also include all supplementary miscellaneous items not specified but implied or required in order to complete the work described by the Specifications.

1.06 SUBMITTALS

- A. Quality Control Submittals: Submit the entire Lead Management submittal package at the same time.
1. Worker' Qualifications: The persons removing lead containing/coated material and their Supervisors shall be personally experienced in this type of work and shall have been employed by a company with a minimum of one-year experience in this type of work.
Submit a copy of documentation of completion of the EPA lead renovators training program.
 - a. Name of lead supervisor on site during the work.
 2. Detailed Work Plan: Submit one copy of the work plan required under Quality Assurance Article.
 3. Waste Transporter Permit: One copy of transporter's current NYS DEC waste transporter permit.
- B. Operation and Maintenance Data: Submit air filtration unit operation and maintenance data and manufacturer's catalog sheets for the HEPA filter.
1. Provide an affidavit stating that the HEPA filters to be used for this project are new and unused.
- C. Contract Closeout Submittals:
1. Disposal Site Receipts: Copy of waste shipment record and disposal site receipt showing that the lead-containing materials have been properly disposed.

1.07 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with the referenced standards.
- B. Pre-Work Conference: Before the Work of this Section is scheduled to commence, a conference will be held by the Owner's Representative at the Site with the contractor and the lead handling subcontractor (if any) for the purpose of reviewing the Contract Documents, discussing requirements for the Work, and reviewing the Work procedures.
- C. Detailed Lead-Containing Material Removal Work Plan: Before the physical Work begins, prepare a detailed lead-containing material removal work plan.

1. The work plan shall include, but not be limited to, the location, size, and details of lead dust control work areas, containment, sequencing of lead containing material handling, work procedures, types of equipment, crew size, and emergency procedures for fire and medical emergencies.

1.08 PROJECT CONDITIONS

- A. Cover and seal all fin-tube radiator covers, diffusers, duplex outlets, speakers, smoke and heat detectors, etc. Use temporary plasticized partitions as required.
 1. Prevent lead containing dust from entering hard to clean areas within the dust containment area.
 2. Items judged to be too difficult to protect may be disconnected, removed and replaced at contractor's option.
- B. Remove or encase all movable equipment in the work area with two layers of six mil fire retardant polyethylene sheeting.
- C. Cut and alter existing materials as required to perform the work. Limit cutting to the smallest amount necessary. Core drill round holes and saw cut other openings where possible for removal work. Flame cutting, high speed grinding or welding is prohibited on lead painted surfaces.

1.09 HEALTH AND SAFETY

- A. Where in the performance of the work, workers, supervisory personnel or sub-contractors may encounter, disturb, or otherwise function in the immediate vicinity of contaminated items and materials, all personnel shall take appropriate continuous measures as necessary to protect all ancillary building occupants from the potential lead exposure.
 1. Such measures shall include the procedures and methods described herein and shall be in compliance with all applicable regulations of Federal, State and Local agencies.

1.10 FIRE PROTECTION, EMERGENCY EGRESS AND SECURITY

- A. Establish emergency and fire exits from the lead dust control work area containment. Provide first aid kits and two full sets of protective clothing and respirators for use by qualified emergency personnel outside of the work area.
- B. Provide a logbook throughout the entire term of the project. All persons who enter the regulated lead dust control work area or containment shall sign the logbook. Document any intrusion or incident in the log book.

1.11 PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

- A. Workers must wear protective suits, protective gloves, eye protection and appropriate respiratory protection for all disturbing lead containing/based paint. Respiratory protection shall be in accordance with OSHA regulation 1910.134 and ANSI Z88.2.
- B. Workers must be trained per EPA, have medical clearance and must have recently received pulmonary function test (PFT) and respirator fit tested by a trained professional.

1. A personal air sampling program shall be in place as required by OSHA.
2. The use of respirators must also follow a complete respiratory protection program as specified by OSHA.

PART 2 PRODUCTS

2.01 RESPIRATORS

- A. Type: Approved by the Mine Safety and Health Administration (MSHA), Department of Labor, or the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.

2.02 VACUUM CLEANERS

- A. Type: Vacuums equipped with new HEPA filters.

2.03 PLASTIC SHEETS

- A. Type: Minimum 6 mil., clear, fire-retardant polyethylene sheets.
- B. Floor Protective Layer: Minimum 10 mil., reinforced polyethylene sheets.

2.04 DISPOSAL BAGS

- A. Type: Minimum 6 mil thick, clear polyethylene bags with preprinted Caution Label. Properly containerize/drum prior to disposal.

2.05 EQUIPMENT

- A. Temporary lighting, heating, hot water heating units, ground fault interrupters, and all other equipment on site shall be UL listed and shall be safe, proper, and sufficient for the purpose intended.
- B. All electrical equipment shall be in compliance with the National Electric Code, Article 305 - Temporary Wiring.

PART 3 EXECUTION

3.01 WORKSITE PREPARATION AND SET-UP

- A. Notification: Distribute notification to occupants and staff workers according to EPA RRP rule 40 CFR 745, Subpart E Section 745.84 Information distribution requirements.
- B. Occupant protection: post signs clearly defining the work area and warning occupants and other persons not involved in restoration activities to remain outside of the work area(s). These signs must be posted before beginning the renovation and must remain in place and readable until the renovation and the post-renovation cleaning verification have been completed. If warning signs have been posted in accordance with 24 CFR 35.1345(b)(2) or 29 CFR 1926.62(m), additional signs are not required by this section.

- C. Lead Control Area Requirements– Interior:
1. Remove all objects from the work area, including furniture, rugs, and window coverings, or cover them with plastic sheeting or other impermeable material with all seams and edges taped or otherwise sealed.
 2. Close and cover all ducts opening in the work area with taped-down plastic sheeting or other impermeable material.
 3. Close windows and doors in the work area. Doors must be covered with plastic sheeting or other impermeable material. Doors used as an entrance to the work area must be covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.
 4. Cover the floor surface, including installed carpet, with taped-down plastic sheeting or other impermeable material in the work area 6 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to contain the dust, whichever is greater. Floor containment measures may stop at the edge of the vertical barrier when using a vertical containment system consisting of impermeable barriers that extend from the floor to the ceiling and are tightly sealed at joints with the floor, ceiling and walls.
 5. Use precautions to ensure that all personnel, tools, and other items, including the exteriors of containers of waste, are free of dust and debris before leaving the work area.
 6. Decontamination Shower Facility: Provide clean and contaminated change rooms and shower facilities in accordance with this specification and 29 CFR 1926.62.
 7. Eye Wash Station: Where eyes may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes shall be provided within the work area.
- D. Lead Control Area Requirements– Exterior:
1. Place proper warning signs required by OSHA regulations at all entrances to the work.
 2. Remove all movable items a 20-foot distance from working surfaces. Items that cannot be readily moved, shall be sealed with a layer of six mil fire retardant polyethylene sheeting.
 3. Limit access to work area. Provide orange cones; saw horses, tape, etc. to demarcate an area a minimum of 20 feet in all directions beyond the subject component(s).
 4. Place a sheet(s) of 6 mil polyethylene on the ground, extending at least 10 feet beyond all areas of the subject component(s); use (6 mil) fire retardant polyethylene sheeting (sheeting). Sheeting shall cover all ground cover within the work area including but not limited to concrete, asphalt, grass and shrubs. Raise edges of sheeting to create a basin in the event of unexpected precipitation. Sheeting shall be attached to building foundation with duct tape or other approved anchoring system. No gaps should exist between sheeting and wall. Weigh down remaining three sides of sheeting with enough heavy objects (e.g. rocks, 2"x4" boards) to eliminate being blown by the wind. Do not anchor ladder feet on top of plastic (puncture the plastic to anchor the ladders securely to ground).
 5. Cover entrances to the work area with single-layer 6 mil polyethylene sheets taped to the top and weighted at bottom.
 6. Cover all vents, diffusers, windows, etc., (within 5 feet in all directions of

- work area), with single layer 6-mil polyethylene sheets secured with tape.
- E. Personnel Protection: Personnel shall wear and use protective clothing and equipment as specified herein. Eating, smoking, or drinking or application of cosmetics is not permitted in the lead control area. No one will be permitted in the lead control area unless they have been appropriately trained and provided with protective equipment.

3.02 LEAD-CONTAINING/COATED MATERIAL HANDLING AND DISPOSAL

- A. Handle and dispose of lead-containing materials in accordance with OSHA 1926.62 and the approved lead-containing material work plan. Use procedures and equipment required to limit occupational and environmental exposure to lead when material containing or coated with lead containing paint is handled and disposed of in accordance with referenced standards.

3.03 ENVIRONMENTAL SAMPLING

- A. Personal Air Monitoring as required by the Occupational Safety and Health Administrations (OSHA) shall be the requirement of the Contractor. Results of daily sampling and/or negative exposure assessment shall be supplied to the Monitoring Contractor and/or Owner's onsite representative within 24 hours of initial collection..

3.04 FINAL CLEAN-UP PROCEDURES

- A. Contractor shall don new coveralls prior to performing clean-up activities.
- B. Begin clean-up at the highest point of any work on the building, working down.
1. Prepare Cleaning Solution (Two Bucket Method):
 - a. Fill a bucket (bucket #1) with a MIXTURE of water and the lead specific cleaning solution, and label it "Cleaning Solution".
 - b. Fill another bucket (bucket #2) with clean cold water, and label it "Clean Rinse"; place it with the bucket labeled "Cleaning Solution".
 2. HEPA vacuum all surfaces around work area that might accumulate dust.
 3. Using the two-bucket method, use two rags designating one as the solution rag (rag #1) and the other as the rinse rag (rag #2).
 4. Always, start with the highest horizontal surface and work down. Clean entire work area (every inch of the window sills, window troughs, 6 mil polyethylene barriers and other window surfaces where dust can accumulate). When practical, clean dirty areas last to avoid spreading dust.
 - a. Dip rag #1 into bucket #1, wring the excess solution into the same bucket and begin to wipe.
 - b. Continue wiping until the rag is dry.
 - c. Dip rag #2 into bucket #2 and wipe only the area you just cleaned with rag #1.
 - d. Repeat steps a through c until designated areas are completely wiped.
 - e. Periodically change the water in bucket #2 (clean rinse).
 - f. Remove 6 mil polyethylene barriers from the work area and any

- areas horizontally adjacent to work area(s) and place in 6 mil polyethylene bags.
- g. Perform a final HEPA vacuum all surfaces around work area that might accumulate dust.
- 5. Move down to the next work area and repeat the steps identified above. This practice shall continue in a downward motion to the lowest point of the work area.
 - 6. Upon completion of cleaning all areas, thoroughly clean scaffolding and remove catch basin erected underneath.
 - 7. Remove any gross material from 6 mil polyethylene sheeting and place in 6 mil polyethylene bags.
 - 8. With a spray bottle, moisten the 6-mil polyethylene sheeting used as ground cover and fold it inward upon itself, thereby trapping any residual dust. Place the 6-mil polyethylene sheeting into 6 mil polyethylene bags. Close all bags with an airtight gooseneck seal (e.g., twist the bag, fold it over on itself, and wrap with duct tape and/or plastic tie).
 - 9. Contractor shall visually inspect and remove any accumulations of debris, paint chips etc., from the drip line of the building and where any breaches in ground cover occurred during abatement.
 - 10. No materials used for cleanup shall be disposed of in the resident's trash containers. All debris shall be removed from the building area. The Contractor shall legally dispose of waste in his own refuse containers in accordance with Federal, State, and City regulations.
 - 11. Remove bags of plastic material from apartment and place in lockable receptacle designated for this project (e.g., roll-off dumpster).

3.05 VISUAL ASSESSMENT

- A. The Owner's Monitoring Contractor will perform a visual assessment of the work area following removal of debris/final cleaning. The area will be deemed visually cleared when the Owner's representative finds the work area(s) clear of visual accumulations of dust, debris, paint chips, etc. The Contractor shall re-clean all areas identified by the Owner's representative until they are deemed visually clean..

3.06 DISPOSAL OF LEAD-CONTAINING/COATED MATERIAL AND RELATED DEBRIS

- A. Transport and dispose of lead-containing material classified as Hazardous Waste in accordance with the standards referenced in Part 1 of this Section.
- B. Transport and dispose of lead-containing material classified as Non- Hazardous Waste in accordance with the standards referenced in Part 1 of this Section.

3.07 RESTORATION

- A. Remove temporary decontamination facilities and restore area designated for these facilities to its original condition or better.
- B. Where existing construction is damaged or contaminated during the course of performing this project, restore area to its condition or better.

END OF SECTION

SECTION 02 86 00

IDENTIFICATION AND DISPOSAL OF HAZARDOUS WASTE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. This specification covers the identification, handling, and disposal requirements for hazardous waste and related hazardous materials identified within the scope of work (SOW) limits of the New York State Office of Parks, Recreation & Historic Preservation (NYSPR), John Jay Homestead State Historic Site (Project), located at 400 Jay Street, Katonah, New York Project. Removal, segregation and/or disposal of materials/components shall be as required to facilitate the demolition work.
- B. Special Wastes:
 - 1. Chlorofluorocarbons (CFC): Assumed CFC containing air conditioning units were observed within the scope of work limits of the project which will require removal to facilitate the demolition of the subject structure. CFC are regulated by EPA, 40 Code of Federal Regulations (CFR) Part 82, *Protection of Stratospheric Ozone*, and EPA Resource Conservation and Recovery Act (RCRA).
 - 2. PCB Bulk Waste and non-liquid PCB materials (NLPCB): Transformer units, ignition capacitors, and light fixture ballasts may contain PCBs; if so, when disposed these materials are EPA- regulated PCB Bulk Waste under TSCA and are NYS hazardous waste. PCB light ballasts are also to be disposed of as NYS Hazardous Waste.
 - 3. Broken mercury (Hg) vapor bulbs are not eligible for the Universal Waste Standard exemptions and are to be handled and disposed of as hazardous waste. Contain, store, and profile Hg vapor collected and dispose of as D009 waste.

1.02 DEFINITION

- A. Hazardous waste shall be any materials to be disposed that possess at least one of four characteristics, ignitability, corrosivity, reactivity or toxicity, as defined and regulated by the Resource Conservation and Recovery Act (RCRA) and applicable state and federal regulations, or a material specifically identified as hazardous waste by applicable Federal or State lists, in 40 CFR 261 or 6 NYCRR 371.
- B. A Conditionally Exempt Small Quantity Generator (CESQG) of hazardous waste shall be a waste handler who generates no more than 100 kilograms per month of listed and/or characteristic hazardous waste, generates no more than 1 kilogram of acute hazardous waste in any calendar month, and stores no more than 1000 kilograms of listed and/or characteristic hazardous waste or more than 1 kilogram of acutely hazardous waste.
- C. A Small Quantity Generator (SQG) of hazardous waste shall be a waste handler who generates no more than 1000 kilograms per month of listed and/or characteristic hazardous waste, generates no more than 1 kilogram of acute hazardous waste per month, and stores no more than 6000 kilograms of listed and/or characteristic hazardous waste or more than 1 kilogram of acutely hazardous waste.

- D. Large Quantity Generator (LQG) of hazardous waste shall be a waste handler who generates more than 1000 kilograms per month of listed and/or characteristic hazardous waste, generates more than 1 kilogram of acute hazardous waste per month, or stores more than 6000 kilograms of hazardous waste or 1 kilogram of acutely hazardous waste.
- E. The EDC's Consultant: The EDC shall provide a third-party consultant to provide pre-work assessments, project monitoring assessments for the construction procedures for the work area and surrounding areas and final clearance assessments. The Contractor shall be responsible for the worker protection requirements.

1.03 SUBMITTALS

- A. Before start of work: At the pre-construction meeting, the Contractor shall submit the following to the Owner's Representative for review:
 - 1. Copy of State or local license for hazardous waste hauler.
 - 2. Certificate of at least one on-site supervisor which has satisfactorily completed the OSHA 40-hour Health and Safety course for handling hazardous waste and spills. *
 - 3. Certificates of workers, which have successfully completed the OSHA 40-Hour Health and Safety Course for Hazardous Waste and spills. *
 - 4. List of the employees scheduled to perform this work.
 - 5. Schedule of start and finish times and dates for this work.
 - 6. The name, address and EPA ID No. of the disposal facility where these waste materials are to be received. Include contact person, a copy of the facility permit and telephone number.
 - 7. The facility permit must identify the waste material(s) to be received and must be accompanied by a statement that the facility has the capacity and authority to accept the waste. Land Disposal Restriction (LDR) forms must also be provided.
 - 8. Safety Data Sheet (SDS) for all materials to be removed.
 - 9. If the Contractor introduces any chemical into the work environment, a SDS for that chemical must be presented to the Owner's Representative prior to use.
 - 10. Transporter must have notified the EPA and/or other appropriate local government agency in advance of its intentions to transport hazardous materials and, if applicable, receive an identification number. The transporter shall submit a copy of the NYS DEC Part 364 Permit, for review.
 - 11. Health and Safety/Contingency Plan for material handling and emergency procedures.
 - 12. Certification for medical examinations.
 - 13. Respiratory protection program.
 - 14. Project Plan: Provide a description of the methods, procedures and materials to be used in performing the work and handling all hazardous wastes. Also provide a schedule identifying specific work areas and duration. The schedules will be utilized to schedule facility and third-party consultant requirements.
 - 15. Waste Sampling Plan: Provide a sampling plan that describes all samples to be taken and the parameters to be analyzed, as well as the laboratory providing the services; or provide another basis for identification of the waste, such as an SDS.
- B. Do not start work until submittals are returned with the EDC's Representative stamp indicating that the submittal is returned for unrestricted use.

1.04 REGULATORY REQUIREMENTS

- A. All activities related to the work shall be conducted in compliance with all applicable laws, regulations, and requirements which may include, but not be limited to, the United States

Environmental Protection Agency (US EPA), United States Department of Transportation (US DOT), Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA), Occupational Safety and Health Administration (OSHA), New York State Department of Environmental Conservation (NYS DEC).

- B. The Contractor is required to secure and maintain all required regulatory permits necessary to perform all aspects of the work.
- C. The Contractor shall containerize and store waste in accordance with all applicable regulations. All containers are to be appropriately marked/labeled.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Drums: Recovery or salvage drums acceptable for disposal of hazardous waste. Prior approval of drums is required. Drums or containers must meet the required OSHA, EPA (40 CFR Parts 260-264 and 300), and DOT Regulations (49 CFR Parts 171-178). Use of damaged containers shall not be allowed.
- B. Labels: As required by the EPA and OSHA for handling, transportation, and disposal of hazardous waste.

Absorbent Material: Clay, soil or any commercially available absorbent used for the purpose of absorbing hazardous or potentially hazardous materials.

PART 3 - EXECUTION

- A. All waste shall be stored, handled, transported and disposed of in accordance with all federal, state and local guidelines and regulations. The Contractor is to obtain all permits, licenses, etc., which are necessary for the storing, transporting and disposing of hazardous waste. The Contractor shall develop all applicable manifests, Profile Sheets, Land Ban Forms and any other documentation and co-ordinate with the Owner regarding proper signatures. The Contractor may be required to notify the EPA of the hazardous waste activities and obtain an EPA identification number specifically for the project, if one is not available.
- B. The Contractor shall identify and classify the hazardous waste generated through the performance of the work as per the governing regulations, and in accordance with the Waste Sampling Plan submittal from Section 1.1 above. The Contractor shall conduct the required sampling and chemical analysis for handling, storing, transporting and disposing of the hazardous waste.
- C. The Contractor is responsible for securing appropriate treatment or disposal for the waste streams at a permitted TSDF, in compliance with all requirements, and for obtaining a copy of the waste manifest as executed by the TSDF. If the manifest is not returned within the required time, the contractor shall notify the Owner and the NYS DEC, and initiate an investigation as required.
- D. Transporters shall maintain waste manifest and shipment record forms. All transporters are required to obtain and maintain NYS DEC Part 364 Waste Transporter permit and, if applicable, a NYC Fire Department permit for transporting flammables. The Part 364 Permit shall have the license plate number of the vehicle, the expiration date of the permit, the type of waste the hauler can take and the treatment, storage and disposal (TSD) facility to which the hauler can

take the waste. The transporter must also have all applicable, current waste transportation permits for states where proposed disposal facility is located.

- E. The Contractor shall supply all required placard and labeling and shall have an appropriately trained individual to prepare and sign the hazardous waste manifest, as the DOT shipper.
- F. The Contractor shall furnish all certified copies of manifests (interim storage and final disposal) within regulatory requirements. Within 30 days from the acceptance of the waste by the disposal facility, the Contractor shall provide the EDC with Certificate of Disposal documents, as a requirement for final payment.
- G. Unless directed otherwise, the Contractor shall file the annual report and fee report if applicable for the hazardous waste shipped and provide closure notification to EPA and DEC immediately upon completion of the work.

*HAZWOPER Training is not required if the waste is PCB Bulk waste alone, but OSHA HAZCOM and TSCA training are still required.

END OF SECTION 02 86 00

SECTION 02 87 00

BIOHAZARD REMEDIATION

PART 1 – GENERAL

1. SCOPE OF WORK

- A. This Section describes the minimum work practices, engineering controls, employee training, and compliance monitoring of the microbial/biological remediation work to be performed at the John Jay Homestead State Historic Site (site) in advance of the restorative efforts to be performed in association with the Abatement and Stabilization Project (Project).
- B. This phased remediation effort shall consist of surface decontamination and sterilization of approximately 4,000 square-feet (ft²) of floor space and shall include all vertical and horizontal surfaces within interior site spaces within all the buildings impacted.
- C. The Contractor shall be made aware of all jobsite conditions and shall be responsible for verifying all dimensions prior to bid submission. Failure to verify jobsite conditions shall not relieve the Contractor of the obligation to furnish all labor and materials necessary to perform the work specified herein.
- D. The Contractor is ultimately responsible for the health and safety of their workers. The Owner shall not be responsible for workplace injuries or illness which result from improper use of engineering controls, personal protective equipment (PPE), or work practice deviations from those prescribed in this Section.

2. Related specification sections

- A. 02 82 00 - Asbestos Abatement
- B. 02 83 04 - Lead Remediation

3. Requirements and Restrictions

- A. Worker hours shall be restricted to Monday through Friday, 8:00am to 5:00pm, unless otherwise approved (in writing) by the Owner.
- B. The General Contractor shall be responsible for securing the Site each day to prevent unauthorized entry. Decontamination areas shall not be constructed in a manner which prevents securing the Site.
- C. Workers without proper training (see Section I General(F)) will not be permitted entry to the Site until clearance has been achieved.

4. General Conditions

- A. Third-party compliance monitoring is not part of this Contract. A third-party firm shall be retained by the Owner who will be responsible for ensuring work is accomplished per this Section and the Contractor's approved Remediation Work Plan.

- B. The third-party compliance monitoring firm shall be responsible for submitting a Mold Remediation Work Plan & Notification Form through the New York State Department of Labor (NYSDOL) in accordance with Article 32.
- C. The NYSDOL Mold Certification will be submitted by the third-party compliance monitoring firm following meeting the successful clearance criteria.
- D. The Contractor shall maintain a daily log of activities performed each day. The log shall be a bound book which remains on-site for the duration of decontamination/disinfection work. If requested, the Contractor will allow the Owner or their representative(s) access to the daily log.
- E. The Contractor shall always adhere to the direction of the Compliance Monitor. The Compliance Monitor and the Owner reserve the right to stop work in the event that procedures do not strictly follow the requirements of this Section. Any stoppage of work shall be at the Contractor's expense.
- F. Prior to performing decontamination/disinfection work, all access points to the Site shall be secured to prevent unauthorized entry and to prevent further animal activity. Barriers shall be hard-walled material (plywood, sheet metal, etc.) which is mechanically fastened to the structure.
- G. Workers participating in remedial efforts shall be properly trained and medically fit to don Personal Protective Equipment (PPE). See Section III for specific PPE requirements.

5. Special Conditions

- A. The work of this Section shall be performed in advance of all construction activities which have the potential to render animal debris airborne or have the potential to otherwise cause risk of adverse health consequences. Sitework and exterior activities
- B. The subject Site is historic and is included in the Federal Registry of Historic Places. Any modifications to existing construction to accommodate entry/exit points, negative ventilation equipment, decontamination areas, etc. shall be coordinated with the Owner. No irreversible modifications shall be implemented to facilitate the work of this Contract.
- C. A discrete test patch of 6"x6" must be done prior to bioremediation efforts on the wooden paneling in the ballroom to ensure products will not strip the varnish.
- D. Waste containers may be staged in the adjacent vacant areas of the Site. The location of the waste container(s) shall be coordinated with the Owner prior to order.
- E. The intent of this decontamination/disinfection is to render the Site safe for re-occupancy. Therefore, all exposed interior surfaces shall be the subject of these efforts. The area shall not be released for re-occupancy until clearance has been obtained per Section IV of this Specification.
- F. Once the Exclusion Zone has been established (see Section III), untrained workers shall be prohibited from entering the Site.
- G. The Contractor shall coordinate with the General Contractor all security and access arrangements.
- H. Pest management shall be performed in accordance with applicable federal, state, and local regulations, including (but not limited to) the New York State Department of Environmental

Conservation (NYSDEC), and the United States Environmental Protection Agency (USEPA).

6. Submittals

- A. Prior to the commencement of work, the Contractor shall provide a Submittal Package to the Engineer for review and comment. No work shall be performed until written acceptance of the Submittal Package has been obtained. The Submittal Package shall be provided to the Engineer no less than twenty (20) working days prior to the commencement of work.
- B. The Submittal Package shall include the following:
 - i. Competent Person: The Contractor shall employ a Competent Person certified through the American Industrial Hygiene Association (AIHA) as a Certified Industrial Hygienist (CIH) or through the Board of Certified Safety Professionals (BCSP) as a Certified Safety Professional (CSP) who will be responsible for employee protection through remediation. Alternative certifications and/or training may be substituted at the Engineer's discretion.
 - ii. Proof of Worker Training: All workers participating in remediation work shall hold current certification as Mold Remediation Workers in accordance with the New York State Department of Labor (NYSDOL) Article 32 Licensing of Mold Inspection, Assessment, and Remediation Specialists and Minimum Work Standards requirements.
 - iii. Proof of current Firm Mold Remediation Certification through the NYSDOL.
 - iv. Written Respiratory Protection and Employee Biological Monitoring Program.
 - v. Written Hazard Communication Program.
 - vi. Written Work Plan including sketches depicting decontamination unit/area location(s), decontamination/disinfection phasing, negative ventilation equipment locations and exhaust routes, waste routes, waste container location(s), and remediation schedule of work. The Work Plan shall also include a written narrative describing the remedial activities proposed, plans to ensure worker protection, and proposed chemicals/biocides.
 - vii. Safety Data Sheets (SDS).

7. PRODUCTS

- A. Materials and chemicals utilized during decontamination and disinfection shall be selected based on their environmental impacts, toxicity, corrosivity, flammability, and carcinogenicity. Specifically, chemicals shall be of low total volatile organic compound (VOC) content, low vapor pressure, and environmentally conscious.
- B. Proposed chemicals, not included as approved in this Section, shall be submitted to the Engineer for review and approval. SDSs shall be submitted no less than twenty (20) working days prior to their intended use.
- C. All chemicals shall be utilized in accordance with manufacturer specifications and shall be provided with appropriate dwell time for maximum efficacy.

D. The following materials have been reviewed and are approved for use:

- i. Surface Defense PLUS Concentrated Disinfectant, Neutron Industries.
- ii. Ecolution Disinfectant Cleaner, State.
- iii. Note; some factors when using proper effective chemical agents such as Bactericidal, Virucidal, Germicidal, Sporicidal and Tuberculocidal requires a claim on label.

8. WORK PRACTICES

A. This section describes the minimum work practices and controls which are to be implemented during all phases of decontamination and disinfection.

B. Proposed deviations from this Section are to be included in the Contractor's written Work Plan and submitted for review. At no time may the Contractor downgrade the controls prescribed in this Section unless Engineer approval has been obtained.

C. Establish personal decontamination area:

- i. The Contractor shall make available a sanitation station, equipped with anti-microbial wash solutions, which shall be utilized by employees as they exit the work area.
- ii. Wash and rinse solutions selected to wash off and reduce the hazards associated with the contaminants. Long-handled, soft-bristled brushes to help wash and rinse off contaminant and paper towels for drying protective clothing and equipment (PPE).
- iii. Plastic sheeting, sealed pads with drains, or other appropriate methods for containing and collecting contaminated wash and rinse solutions spilled during decontamination. In addition, general household washing solutions for employees to clean their hands with such as soap.
- iv. Workers shall remove protective coveralls and gloves in the decontamination zone, which shall be immediately placed in polyethylene waste bags and sealed for disposal.
- v. Organic solvents that may be flammable or possibly poisonous need to be reviewed by the Engineer prior to use. Alcohols, ethers, ketones, aromatics, straight-chain alkanes, and typical petroleum products are examples of organic solvents.

D. Work Preparation:

- i. The Contractor shall establish an Exclusion Zone which clearly demarcates the Work Area. The area shall be cordoned off with a clearly visible barrier (caution tape, cones, etc.) prohibiting unauthorized access.

- ii. The Contractor shall include signage which includes a warning/hazard statement and pictogram at each entry to the work area.
- iii. Workers participating in decontamination and disinfection activities shall don PPE prior to entering the Exclusion Zone. PPE shall include (at a minimum) full-body coveralls (Tyvek or equivalent), boot covers, safety-toe boots, fully enclosing eye goggles, and half-faced respirator. Full face respirators may be used in the place of fully enclosing goggles. At no time shall workers enter the exclusion zone without proper PPE.
- iv. Respiratory protection cartridges shall be dual-type P100 with organic vapor. Nuisance level organic vapor relief cartridges shall not be used.
 - 1. Additional respiratory protection may be required based on biocide/disinfection selection. If recommended by the manufacturer, chemical cartridges shall be used.
- v. The Contractor shall install negative air units equipped with High Efficiency Particulate Air (HEPA) filtration at each floor. No decontamination activities shall commence until negative pressure has been established. The purpose of establishing negative pressure is to migrate potential contaminants/toxins from the workers while simultaneously introducing fresh outside air.
- vi. Negative air units shall have a capacity of 2,000 cubic feet per minute (per manufacturer).
- vii. Negative air unit capacity shall be recorded daily by the third-party Compliance Monitor.

E. Execution:

- i. Upon successfully establishing negative pressure, the accumulated debris shall be lightly misted with water using a Hudson sprayer or airless sprayer to prevent debris from becoming airborne. The misting shall be performed periodically throughout the shift and shall only be performed within the immediate vicinity of work to prevent standing water.
 - 1. At no time shall debris being handled be allowed to dry out. Sweeping of dry materials shall be strictly prohibited.
- ii. Accumulated debris shall be immediately gathered using manual methods and bagged in a 3-mil polyethylene bag. Bags shall be sealed with a "gooseneck" style not and sealed with duct tape. Bags shall be periodically carted to the waste container during each shift. At no time shall bags be allowed to accumulate within the work area.
- iii. Bulk materials (animal feces, carcasses, dander, soil, etc.) shall be removed from the site utilizing the procedures described herein. The Contractor shall ensure concealed spaces, such as behind heating elements, light fixture housings, etc. have been included in these decontamination efforts.

- iv. Components which are observed to be in disrepair or unsalvageable may be discarded only as approved by the Owner.
- v. Upon completion of the decontamination phase, the Contractor will request a visual inspection be performed to verify completeness. The visual inspection will be performed by the Compliance Monitor and the Contractor Supervisor/Competent Person.
- vi. Upon satisfactory visual inspection, the Contractor shall begin the disinfection phase of the remediation work.
- vii. The Contractor shall clean all vertical and horizontal surfaces using (an approved) detergent and an abrasive (brush, rag, etc.). Care shall be taken as to not cause irreversible damage to building components or finishes. The Contractor shall assume total responsibility to maintaining components and finishes scheduled for restoration. All costs associated with additional restorative work (not included in the base contract scope) shall be at the cost of the Contractor.
- viii. The Contractor shall install and make operational dehumidifiers post cleaning efforts. Applications of disinfectants or biocides shall not be performed until the work area is sufficiently dry. Sufficiently dry shall mean within $\pm 5\%$ relative humidity when compared to exterior conditions.
- ix. Once all waste/debris has been removed from the site and the work area is sufficiently dry, the Contractor may begin applying disinfectant/biocide to affected surfaces. The disinfectant/biocide shall be applied using an airless sprayer set to the lowest pressure setting.
- x. Dwell times shall be per manufacturer's specification. Other trades shall not be permitted entry to the work area during dwell times.
- xi. After completion, negative pressure units may be turned-off, equipment cleaned and removed from the Site.

9. THIRD-PARTY VERIFICATION AND QUALITY ASSURANCE

- A. This Section describes the third-party verification and quality assurance sequence and clearance criteria.
- B. Re-occupancy shall not be allowed until successful clearance has been obtained in writing.
- C. A visual inspection shall be performed by the third-party Compliance Monitor to determine decontamination and disinfection completion.
- D. Deficiencies will be noted and communicated to the Contractor's Supervisor.
- E. Following the successful visual inspection, measurements of component/finish moisture content and relative humidity readings will be collected and documented to ensure that the interior spaces are sufficiently dry, mitigating the potential for future microbial growth.

- F. Air samples shall be collected at each affected floor at a central location (away from openings or windows) and submitted to a third-party laboratory accredited through the Environmental Laboratory Accreditation Program (ELAP) for analysis.
- G. Sample collection will be accomplished using inertial impaction methods.
- H. Results shall be provided to the Engineer for review and approval. Results will be compared to industry standard interpretation methodologies. For clearance to be obtained, the results of the visual and quantitative analysis must support the supposition that there are no remaining microbiological sources within the subject structure.
- I. Clearance will be provided in written format to the Contractor and Owner. The third-party Compliance Monitoring Firm will be responsible for supplying a clearance document to the Contractor and Owner.
- J. Once clearance has been obtained, the Site may be released to the General Contractor.

10. CLOSEOUT

- A. The Contractor will be responsible for providing a written closeout report, documenting the work accomplished, a copy of the Supervisor's log, results of the clearance sampling, and copies of the Mold Remediation Notification.

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SECTION 031000 - CONCRETE FORMWORK

PART 1 - GENERAL

1.1 GENERAL

Work of this Section shall conform to requirements of Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections.

1.2 SCOPE

Provide all labor, materials, equipment, services and transportation for formwork and related accessories required to complete all cast-in-place concrete work as shown on Drawings, as specified herein, and as required by the job conditions.

This specification is prepared for limited use of concrete formwork at foundation walls and slab-on-grade edges only. Notify structural engineer and request supplemental specifications if scope is expanded to include suspended concrete structures.

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

Submittals	Division 1
Quality Control	Division 1
Quality Assurance: Structural Testing and Inspection	Section 014500
Concrete Reinforcement	Section 032000
Cast-In-Place Concrete	Section 033000
Thermal and Moisture Protection	Division 7

1.4 CODES AND STANDARDS

- A. Building Code: Concrete work shall conform to the requirements of the Building Code identified on the Structural General Notes, and OSHA requirements, except where more stringent conditions or criteria occur in the standards referenced below and on the Drawings.
- B. Standards:
 - 1. ACI 117 – Standard Specifications for Tolerances for Concrete Construction and Materials.
 - 2. ACI 301 – Specifications for Structural Concrete.
 - 3. ACI 318 – Building Code Requirements for Structural Concrete and Commentary.
 - 4. ACI 347 – Guide to Formwork for Concrete.
- C. Definitions:
 - 1. See Section 033000.

1.5 CONTRACTOR QUALIFICATIONS

- A. The work of this section shall be performed by a company specializing in the type of concrete formwork required for this Project, with a minimum of 10 years of documented

successful experience and shall be performed by skilled workers thoroughly experienced in the necessary crafts.

1.6 SUBMITTALS

- A. Required Submittals - Where the SUBMITTALS section of this Specification is in conflict with Division 1 Submittals, the more stringent requirements for the Contractor apply. Required submittal items are listed here; see below for detailed requirements. Do not submit items not requested.

- (1) Submittal Schedule
- (2) Shop Drawings
- (3) Product Data
- (4) Compatibility Certification
- (5) Hazardous Materials Notification

1. Submittal Schedule: See Section 033000.

2. Shop Drawings:

- a) Submit for action: Shop drawings shall clearly indicate but not be limited to the following:

1. Size, type and quality of form materials including conditions at tops and ends of walls. (If wood is used, indicate species.)
 2. Form construction indicating structural stability and jointing including special form joints or reveals required by Contract Documents
 3. Location and pattern of form tie placement, and other items that affect the appearance of concrete that will remain exposed to view.
 4. Form finish clearly indicating proper locations and full coordination with concrete finishes required by Contract Documents.
 5. Locations and dimensions of openings in structural members.
 6. Location of proposed construction joints in walls and floors, slabs.

3. Product Data: Submit for action copies of manufacturers' product data and installation instructions for proprietary materials used in exposed concrete work, including form liners, release agents, manufactured form systems, ties, and accessories.
4. Compatibility Certification: Submit for record a written statement certifying that form release agent used is compatible with subsequent architectural finish materials applied to concrete surfaces. Submit along with manufacturer's data.
5. Hazardous Materials Notification: Submit for record. In the event no product or material is available that does not contain hazardous materials as determined by the Owner, a "Material Safety Data Sheet" (MSDS) equivalent to OSHA Form 20 shall be submitted for that proposed product or material prior to installation.

- B. Submittal Process: See Section 033000.

- C. SER Submittal Review: See Section 033000.
- D. Substitution Request: See Section 033000.
- E. Request for Information (RFI): See Section 033000.

1.7 FORMWORK DESIGN

- A. Design of Formwork, Shoring/Reshoring, and its removal is the Contractor's responsibility.
- B. Design, erect, support, brace and maintain formwork so that it will safely support vertical and lateral loads per SEI/ASCE 37-02 that might be applied, until such loads can be supported by the concrete structure.
- C. Design Requirements:
 - 1. Forms shall be designed for fabrication and erection in accordance with Design Professionals' requirements and recommendations of ACI 301, 318
 - 2. Design formwork in a manner such that the total construction load does not at any time exceed the total design load of new or existing construction and accounts for concrete age and relative strength at time of loading. See Section 3.2 for shoring/reshoring requirements.
 - 3. Design formwork for loads and lateral pressures outlined in Section 2.2, ACI 347, and wind and seismic loads as specified by SEI/ASCE 37-02 unless otherwise controlled by local building code.
 - 4. Design formwork to include loads imposed during construction, including weight of construction equipment, concrete mix, height of concrete drop, rate of filling of formwork, vibrator frequency, ambient temperature, foundation pressures, lateral stability, temporary imbalance or discontinuity of building components, and other factors pertinent to safety of structure during construction.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with General Conditions and Division 1, including the following:
 - 1. Store forms and form materials clear of ground and protect from damage.

1.9 QUALITY CONTROL BY CONTRACTOR

- A. See Section 033000.

1.10 OBSERVATIONS AND CORRECTIONS BY DESIGN PROFESSIONALS

- A. See Section 033000.

1.11 PERMITS AND WARRANTY

- A. Permits: See Section 033000.
- B. Warranty: See Section 033000. Failures include but are not limited to the following:
 - 1. Discoloration of concrete scheduled to remain exposed to view.

2. Damage of concrete finishes caused by forms.
3. Damage of concrete caused by form stripping.
4. Non-compliance with form finishes required for designated architectural finishes.
5. Non-compatibility of form release agent with subsequent architectural finish materials applied to concrete surfaces.
6. Excessive and/or noticeable bowing in placed concrete members caused by deflection of formwork during concrete placement.

PART 2 - PRODUCTS

2.1 FORMWORK REQUIREMENTS

A. General Requirements:

1. Formwork shall meet construction safety regulations for the state where the project is located.
2. Forms shall be removable without impact, shock or damage to concrete surfaces, the structure and adjacent materials.
3. Forms shall be tight-fitting, designed and fabricated for required finishes and to withstand concrete weight and maintain tolerances as specified in ACI 117 for minimum quality of Class C – General Standard for permanently exposed surfaces where other finishes are not specified.
4. Furnish forms in largest practicable sizes to minimize number of joints and to conform to joint system shown on Drawings, using form materials with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.
5. Butt Joints: Shall be solid and complete with backup material to prevent leakage of cement paste.

B. Form Finishes for Exposed Surfaces:

1. Type: Straight, smooth, free of cement paste leaks at butt-joints, surface imperfections and other irregularities detrimental to appearance of finished concrete, fully coordinated with requirements for required finish material.

2.2 FORM MATERIALS

A. General: Plywood, fiberglass, metal, metal-framed plywood faced, or other acceptable panel-type materials.

1. Provide materials with sufficient strength to prevent warping.

B. Plywood: Of species and grade suitable for intended use, sound undamaged sheets with clean true edges, minimum 5/8" (16mm) thick, complying with U.S. Product Standard PS-1.

1. Other Acceptable Sheet Materials: 14 gauge (2.0mm) sheet steel or fibrous glass reinforced resin.

C. Lumber: Construction grade or better consistent with calculation requirements, without loose knots or other defects.

1. Use only where entire width can be covered with one board 11-1/4" (285mm) or less in width.
- D. Chamfer for Form Corners:
1. Types: Chamfer strips of wood, metal, PVC or rubber fabricated to produce smooth form lines and tight edge joints, 3/4" (20mm) size, maximum possible lengths.
 2. Required for all exposed corners of beam, walls and column forms.
- E. Form Ties:
1. Type: Factory-fabricated metal, adjustable length, designed to prevent form deflection and to prevent spalling concrete upon removal.
 2. Ties used for architecturally exposed concrete shall be galvanized.
 3. Ties shall not leave metal closer than 1-1/2" (40mm) to exposed surface.
 4. When removed, ties shall not leave holes larger than 1" (25mm) diameter in concrete surface.
 5. Removable Ties: Use type with tapered cones, 1" (25mm) outside diameter, for concrete walls which will remain exposed to view and scheduled for architectural finishes.
 6. Snap-Off Ties: Use for concrete walls below grade and walls which will not remain exposed to view and are not scheduled for architectural finishes.
 7. Wire Ties: Not acceptable.
- F. Nails, Spikes, Lag Bolts, Thru-Bolts, Anchorages:
1. Type: Of size, strength and quality to meet the required quality of formwork.
- G. Form Release Agent:
1. Type: Commercial formulation form release agent of non-emulsifiable type which will not bond with, stain, or adversely affect concrete surfaces. Form release agent shall not impair subsequent treatment of concrete surfaces requiring bond or adhesion, or impede the wetting of surfaces to be cured with water or curing compounds. Form release agent shall be compatible with subsequent architectural finish materials applied to concrete surfaces. Apply in compliance with manufacturers' instructions.
 2. Form release agent shall meet, at a minimum, all federal and state requirements for volatile organic compounds (VOC's).
 3. Steel forms not permitted.
- H. Reglets: Provide sheet metal reglets formed of same type and gauge as flashing metal, unless indicated otherwise on Drawings. Where resilient or elastomeric sheet flashing, or bituminous membranes are terminated in reglets, provide reglets of not less than 26 gauge (0.55mm) galvanized sheet metal. Fill reglet or cover face opening to prevent intrusion of concrete or debris.

I. Form Liners:

1. Manufacturers: Scott System or approved equal
2. Materials: Reusable, elastomeric formliners for texturing architectural concrete with standard patterns.
 - a) Pattern and Texture: Scott System #159 Split Face Rock
 - b) Properties:
 1. Hardness, Shore A ASTM D2240: 65-70A
 2. Tensile Strength, ASTM D412: 1525 psi
 3. Tear Strength, ASTM D624: 143 pli
 4. Ter Strength, ASTM D1938: 40 pli
 5. Elongation, ASTM D412 – percent: 330%
 6. Color: Mid-Gray

- J. Coordinate with materials as specified in Section 032000 Concrete Reinforcement and Embedded Assemblies.

PART 3 - EXECUTION

3.1 FORMWORK

A. General:

1. Inspect areas to receive formwork.
2. Construct forms to sizes, shapes, lines, and dimensions shown on Contract Documents, and to obtain accurate alignment, location, grades, level and plumb work in finished structures.
3. Provide formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints as required to prevent leakage and fins, and to maintain alignment.
4. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, drips, bevels, chamfers, blocking, screeds, bulkheads, anchorages and inserts and other features required in the Work.
5. Comply with shop drawings, ACI 301, 318, 347 and Contract Documents.
6. Maintain formwork and finished work construction tolerances complying with ACI 301 and 117.
7. Provide shore and struts with positive means of adjustment capable of taking up formwork settlement during concrete placing operations, using wedges or jacks or a combination thereof.
8. Erect forms for easy removal without hammering or prying against concrete surfaces.
9. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.
10. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only.
11. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.

12. Chamfer exposed corners and edges as indicated on the architectural drawings, using wood, metal, PVC or rubber chamfer strips fabricated to produce smooth lines and tight edge joints.
13. Design, erect, support, brace and maintain formwork to support loads until such loads can be safely supported by the concrete structure.
14. Where specifically shown on the Contract Documents as monolithic, upturned beams, curbs and similar members in connection with slabs shall be formed so that they can be poured integrally with slabs.

B. Concrete Accessories and Embedded Items:

1. Install into forms concrete accessories, sleeves, inserts, anchor bolts, anchorage devices and other miscellaneous embedded items furnished by other trades or that are required for other work that is attached to or supported by cast-in-place concrete.
 - a) Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached.
2. Install reglets to receive top edge of foundation sheet waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles, and other conditions.
3. Coordinate with CONCRETE REINFORCEMENT AND EMBEDDED ASSEMBLIES Section in Specification 032000.
4. Install accessories and embedded items straight, level, plumb and secure in place to prevent displacement by concrete placement.

C. Provisions for Other Trades: Coordinate and provide openings in concrete formwork to accommodate work of other trades.

1. Determine size and location of openings, recesses, chases, offsets, openings, depressions, and curbs from information provided by trades requiring such items.
2. Accurately place and securely support items built into forms.

D. Cleaning:

1. Normal Conditions:
 - a) Thoroughly clean forms and adjacent surfaces to receive concrete.
 - b) Remove chips, wood, sawdust, dirt, standing water or other debris just before placing concrete.
 - c) Flush with water or use compressed air to remove remaining foreign matter.
 - d) Verify that water and debris can drain from forms through clean-out ports.
2. During Cold Weather:
 - a) Remove ice and snow from within forms.
 - b) Do not use de-icing salts.
 - c) Do not use water to clean out completed forms, unless formwork and concrete construction will proceed within heated enclosure.

- d) Use compressed air or other means to remove foreign matter.
- E. Form Release Agents
 - 1. Before placing reinforcing steel and miscellaneous embedded items, coat contact surfaces of forms with an approved non-residual, low VOC form release agent in accordance with manufacturer's published instructions.
 - 2. Do not allow release agent to accumulate in forms or come into contact with reinforcement or concrete against which fresh concrete will be placed.
 - a) Coat steel forms with nonstaining, rust-preventative material.
 - 3. Remove form release agent and residue from reinforcement or surfaces not requiring form coating.
- F. Before Placing Concrete:
 - 1. Inspect and check completed formwork, shoring and bracing to ensure that work is in accordance with formwork requirements of this section and Contract Documents, and that supports, fastenings, wedges, ties, and parts are secure.
 - a) Make necessary corrections or adjustment to formwork to meet tolerance requirements.
 - 2. Retighten forms and bracing before concrete placement to prevent mortar leaks and maintain proper alignment.
 - 3. Notify Testing Agency sufficiently in advance of placement of concrete to allow inspection of completed and cleaned forms.
- G. During Concrete Placement:
 - 1. Maintain a check on formwork to ensure that forms, shoring, ties and other parts of formwork have not been disturbed by concrete placement methods or equipment.
 - 2. Use positive means of adjustment as required for formwork settlement during concrete placing operations.
- H. Surface Defects:
 - 1. Install forms that will not impair the texture of the concrete and are compatible with the specified finish type.
- I. Formwork Loads on Grade
 - 1. Where loads from formwork bear on grade, provide suitable load-spreading devices for adequate support and to minimize settlement. In no event shall frozen ground or soft ground be utilized directly as the supporting medium.
- J. Footings and Grade Beams:
 - 1. Provide forms for footings and grade beams if soil or other conditions are such that earth trench forms are unsuitable.

2. When trench forms are used, provide an additional 1" (25mm) of concrete on each side of the minimum design profiles and dimensions indicated.
- K. For slabs-on-grade, secure edge forms in such a manner as to not move under weight of construction loads, construction and finishing equipment, or workers.
- L. Form Liner:
1. Verify lines and levels of formwork and form liner patterns are within allowable tolerances.
 2. On multiple use liners, clean liner before each use. Do not use damaged liner when continued use or repair would diminish the aesthetics of the work.
 3. Apply release agent according to manufacturer's directions. Schedule concrete pour immediately after application of release agent to avoid precipitation, dust, and debris.
 4. Install units within manufacturer's recommended tolerances. Comply with manufacturer's installation instructions and approved submittals. Refer to manufacturer's Application Guide for proper procedures for installing formliners.
 5. Store and use form liner panels at temperatures between 40 degrees F and 140 degrees F.
 6. Seal formliner joints, rustication/chamfer joints, and tie holes to prevent cement paste from bleeding.
 7. Provide solid backing at formliner joints where unsupported by formwork to prevent deflection.
 8. Provide openings, offsets, keyways, recesses, chamfers, blocking, and screeds as required to achieve architectural concrete textured finish.
 9. Install backing as required to prevent deflection of the formliner due to form pressures.
 10. For applications with reusable formliners, comply with requirements of paragraph Delivery Storage and Handling when handling and storing units between uses. Prevent matrix build-up on the formliner surface. Excess release agent shall be removed before the form and liner is put back into service.
 11. Storage of form liner shall be out of direct sunlight and in temperatures below 140 degrees F. Store flat (not rolled) to avoid elastomeric sheet "set".

3.2 REMOVING FORMS

- A. Formwork not supporting the weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50°F (10°C) for 12 hours after placing concrete, provided concrete is sufficiently hard to avoid damage by form-removal operations, and provided curing and protection operations are maintained after removal of formwork.
- B. Where reshoring is required as part of the formwork removal process, refer to the Shores and Reshores section of this specification.
- C. Determination of early age compressive strength of concrete at time of formwork removal shall be made by compression tests of field-cured cylinders or by the maturity method in accordance with ASTM C1074. If the maturity method is used, submit sufficient data using project materials to demonstrate correlation of measurements on the structure with the compressive strength of laboratory-cured molded cylinders.

- D. Remove formwork progressively using methods to prevent shock loads or unbalanced loads from being imposed on structure. Comply with ACI 347.
- E. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against concrete surfaces.
- F. Whenever formwork is removed during the curing period, the exposed concrete shall be cured per requirements of Section 033000.
- G. All wood formwork, including that used in void spaces, pockets and other similar places shall be removed.
- H. Form tie holes shall be filled as per approved samples submitted to the Design Professionals.
- I. The Contractor shall assume responsibility for all damage due to removal of the forms.

3.3 RE-USING FORMS

- A. Before forms can be re-used, surfaces that will be in contact with freshly poured concrete must be thoroughly cleaned, damaged areas repaired, and projecting nails withdrawn.
 - 1. Split, frayed, delaminated or otherwise damaged form-facing material will not be acceptable.
 - 2. Apply new form release agent on re-used forms.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joints to avoid offsets.
- C. Forms for exposed concrete may be reused only if the surfaces have not absorbed moisture and have not splintered, warped, discolored, stained, rusted or peeled, subject to acceptance by the Design Professionals. The Design Professionals reserve the right to require the Contractor to remove and reconstruct such formwork as will produce subsequent areas that are acceptable. Do not use "patched" forms for exposed concrete surfaces, unless approved by the Design Professionals.

3.4 CORRECTIVE MEASURES

- A. Where the Contractor requests that the Design Professionals develop the corrective actions or review corrective actions developed by others, the Design Professional shall be compensated as outlined in Part 3 – CORRECTIVE MEASURES section of Specification 033000.

END OF SECTION

SECTION 032000 – CONCRETE REINFORCEMENT AND EMBEDDED ASSEMBLIES

PART 1 - GENERAL

1.1 GENERAL

Work of this Section shall conform to requirements of Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections.

1.2 SCOPE

Provide all labor, materials, equipment, services and transportation for reinforcing steel, accessories, embedments and miscellaneous anchorage accessories, joint fillers, and waterstops for cast-in-place concrete work as shown on Drawings, as specified herein, and as required by the job conditions.

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

Submittals	Division 1
Quality Control	Division 1
Quality Assurance: Structural Testing and Inspection	Section 014500
Concrete Formwork	Section 031000
Cast-In-Place Concrete	Section 033000
Thermal and Moisture Protection	Division 7

1.4 CODES AND STANDARDS

- A. Building Code: Concrete work shall conform to the requirements of the Building Code identified on the Structural General Notes, and OSHA requirements, except where more stringent conditions or criteria occur in the standards referenced below and on the Drawings.
- B. Standards:
 - 1. ACI 117 – Standard Specifications for Tolerances for Concrete Construction and Materials.
 - 2. ACI 301 – Specifications for Structural Concrete.
 - 3. ACI 315 – Details and Detailing of Concrete Reinforcement.
 - 4. ACI 318 – Building Code Requirements for Structural Concrete and Commentary.
 - 5. ACI 355.2 – Qualification of Post-Installed Mechanical Anchors in Concrete and Commentary
 - 6. ACI 355.4 – Qualification of Post-Installed Adhesive Anchors in Concrete and Commentary
 - 7. American Society for Testing and Materials "ASTM Standards in Building Codes", various standards as referenced herein.
 - 8. AWS D1.1 – Structural Welding Code-Steel.
 - 9. AWS D1.4 – Structural Welding Code-Reinforcing Steel.
 - 10. CRD C 572 – Specification for Polyvinylchloride Waterstops.
 - 11. Concrete Reinforcing Steel Institute "Manual of Standard Practice"

12. ASTM D3963 Fabrication and Jobsite Handling of epoxy Coated Steel Reinforcing Bars.

C. Definitions:

1. See Section 033000.

1.5 CONTRACTOR QUALIFICATIONS

- A. The work of this section shall be performed by a fabricator specializing in the type of reinforcement fabrication required for this Project, with a minimum of 10 years of documented successful experience and shall be performed by skilled workmen thoroughly experienced in the necessary crafts.
1. Welders shall be qualified in accordance with applicable AWS Code within 12 months before starting the work.
 - a) Make qualification records available to the Design Professionals upon request.
- B. Manufacturers shall specialize in manufacturing the types of concrete accessories required for cast-in-place concrete work, with a minimum of 10 years of documented successful experience and shall have the facilities capable of meeting all requirements of Contract Documents as a single-source responsibility and warranty for each type of accessory.

1.6 SUBMITTALS

- A. Required Submittals - Where the SUBMITTALS section of this Specification is in conflict with Division 1 Submittals, the more stringent requirements for the Contractor apply. Required submittal items are listed here; see below for detailed requirements. Do not submit items not requested. Reproduction of Contract Drawings as shop drawings is not permitted.

- (1) Submittal Schedule
- (2) Shop Drawings
- (3) Product Data
- (4) Mill Reports
- (5) Reinforcement Strain Test
- (6) Hazardous Materials Notification

1. Submittal Schedule: See Section 033000.
2. Shop Drawings: Submit for action shop drawings that shall clearly indicate, but not be limited to:
 - a) All details, dimensions and information required for fabrication and placement of concrete reinforcement in accordance with Contract Documents, prepared in accordance with ACI 315 recommendations.
 - b) Elevations, plans, sections, and dimensions of concrete work with required reinforcement clearances.

- c) Ledges, brackets, openings, sleeves, anchor rods, embedments, prefabricated bent-in dowel keyway systems, electrical conduit and items of other trades including interference with reinforcing materials.
 - d) Sizes, grade designations, spacing, locations, and quantities of wire fabric, reinforcement bars, temperature and shrinkage reinforcement dowels.
 - i. Do not use dimensions scaled from Contract Drawings to determine bar lengths.
 - ii. Hooks and bends not specifically dimensioned shall be detailed per ACI 318.
 - e) Bending and cutting schedules, assembly diagrams, splicing and connection requirements, details, and laps.
 - f) Each type of supporting and spacing devices, including miscellaneous accessories.
 - g) Construction joint type, details, and locations. Contractor shall coordinate construction joint type, details, and locations with concrete pour schedule. Submittal shall include details for each type of construction joint in accordance with Contract Documents.
 - h) Locations and dimensions of openings in structural members including floor slab, shear walls, columns and beams. See SUBMITTALS Section of Specification 033000.
 - i) Concrete accessories and embedded items. See SUBMITTALS Section of Specification 033000.
 - 3. Product Data: Submit for action for each type of product identified in Part 2. Product Data shall be clearly marked to indicate all technical information which specifies full compliance with this section and Contract Documents, including published installation instructions and I.C.C reports, where applicable, for products of each manufacturer specified in this section.
 - 4. Mill Reports: Submit for record.
 - 5. Reinforcement Strain Test: For Grade 75 reinforcement, submit for record certification that steel has a yield strength of no less than 75 ksi as measured by both ASTM A615 and ACI 318 Section 3.5.3.2 procedures.
 - 6. Hazardous Materials Notification: Submit for record. In the event no product or material is available that does not contain hazardous materials as determined by the Owner, a "Material Safety Data Sheet" (MSDS) equivalent to OSHA Form 20 shall be submitted for that proposed product or material prior to installation.
 - B. Submittal Process: See Section 033000.
 - C. SER Submittal Review: See Section 033000.
 - D. Substitution Request: See Section 033000.
 - E. Request for Information (RFI): See Section 033000.
- 1.7 DELIVERY, STORAGE, AND HANDLING
- A. Comply with General Conditions and Division 1, including the following:

1. Deliver reinforcing steel to Project site bundled, tagged and marked.
 - a) Use weatherproof tags indicating bar sizes, lengths and other information corresponding to markings shown on placement diagrams.
2. Deliver welded wire fabric in sheets. Do not deliver in rolls.
3. During construction period, properly store reinforcing steel and accessories to assure uniformity throughout the Project.
4. Deliver and store welding electrodes in accordance with AWS D1.4.
5. Immediately remove from site materials not complying with Contract Documents or determined to be damaged.
6. Store reinforcing steel above ground so that it remains clean.
 - a) Maintain steel surfaces free from materials and coatings that might impair bond.
 - b) Keep covered.
 - c) Protect against corrosion or deterioration of any kind.

1.8 QUALITY ASSURANCE BY OWNER'S TESTING AGENCY

- A. See Section 014500.

1.9 QUALITY CONTROL BY CONTRACTOR

- A. See Section 033000.

1.10 OBSERVATIONS AND CORRECTIONS BY DESIGN PROFESSIONALS

- A. See Section 033000.

1.11 PERMITS AND WARRANTY

- A. Permits: See Section 033000.
- B. Warranty: See Section 033000. Failures include but are not limited to the following:
1. Bars with kinks or bends not indicated on Drawings or on approved shop drawings.
 2. Bars damaged due to bending, straightening or cutting.
 3. Bars heated for bending.

PART 2 - PRODUCTS

2.1 REINFORCEMENT

- A. Reinforcing Steel:
1. Type: Deformed billet steel bars, ASTM A 615, Grade 60 or 75 as indicated on Drawings.
 2. Size: As indicated on structural Drawings.

3. Where indicated on Drawings, reinforcing steel shall be hot-dipped galvanized after fabrication in accordance with ASTM A 767, Class II, with galvanizing material protected from embrittlement during galvanizing process in accordance with ASTM A 143.
 - a) Galvanized finish shall meet the bend and shear test requirements of ASTM A 615.
 4. Epoxy-Coated: ASTM A 775 where indicated on Drawings.
 5. Weldable reinforcement: ASTM A 706 where indicated on Drawings.
- B. Welded Wire Reinforcement:
1. Type: steel wire, deformed, ASTM A1064.
 2. Size: As indicated on structural Drawings.
 3. Where indicated on Drawings, welded wire reinforcement shall be hot-dipped galvanized after fabrication in accordance with ASTM A 1060, , with galvanizing material protected from embrittlement during galvanizing process in accordance with ASTM A 143.
 - a) Galvanized finish shall meet the bend and shear test requirements of ASTM A 615.
 4. Plain Steel Welded Wire Reinforcement: ASTM A 1064.
 5. Deformed Steel Welded Wire Reinforcement: ASTM A 1064.
 6. Epoxy-Coated Welded Wire Reinforcement: ASTM A 884, Class A.
- C. Headed Shear Stud Reinforcement At Slab-Column Connections:
1. Type: Stud assemblies consisting of either single-headed studs attached to a structural steel base rail by structural welding or double-headed studs attached to a non-structural steel shape/plate for alignment and for shear reinforcement at slab-column connections shall be in accordance with ASTM A 1044. Headed shear studs per AWS D1.1 are not an acceptable substitution for headed shear stud reinforcement. A
 - a) Shear studs shall be in accordance with either ASTM A108 or ASTM A29, Grade 1010 through 1020. Yield strength shall be 51,000 psi minimum and tensile strength shall be 65,000 psi minimum.
 - b) Rails shall be in accordance with ASTM A36 or CSA 44W. Yield strength shall be 44,000 psi minimum and tensile strength shall be 65,000 psi minimum.
 - c) Studs shall be welded in accordance with AWS D1.1.
 - d) Acceptable Products:
 - i. Studrails by DECON, Inc.
 - ii. DSA by SureBuilt Manufacturing
 - iii. DSR by Dayton Superior Corporation
 - iv. Suncoast SRS by Suncoast Post-Tension, Ltd.
 2. Size, quantity and spacing: As indicated on structural Drawings.

3. Installation: Per manufacturer's instructions.
4. Supports: Use plastic molded plastic chairs as provided by the manufacturer to maintain the bottom rebar cover as specified on the Drawings. Tie headed shear stud reinforcement to adjacent top bars to maintain vertical position.

D. Reinforcement Coating Repair Materials:

1. Apply repair coating in accordance with the manufacturer's written procedures.
2. Galvanized Repair Coating: Zinc-based solder, paint containing zinc dust or sprayed zinc complying with ASTM A780.
3. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with D3963/D3963M referencing Annex A2 of ASTM A775/A775M.
 - a) The maximum amount of repaired damaged areas shall not exceed 2% of the surface area in each linear foot of each bar. If more than 2% of the surface area in each linear foot of bar is damaged, bar shall be replaced.

2.2 ACCESSORIES

A. Tie Wire:

1. Type: Minimum 16 gauge (1.5mm) annealed steel wire, ASTM A 510 and ASTM A 853.
2. Wire Bar Type: Comply with CRSI.

B. Mechanical Splicing Systems:

1. Mechanical tension and compression splicing systems shall be used where indicated on Drawings or at contractor's option. For seismic design categories D, E and F, in plastic hinge regions, only Type 2 mechanical splices are permitted.
2. Splices shall be installed in accordance with manufacturer's requirements.
3. Acceptable Products:
 - a) Bartec Couplers by Dextra
 - b) Griptec Couplers by Dextra
 - c) Unitec Couplers by Dextra
 - d) Lenton Couplers by Erico
 - e) Lenton Cadweld by Erico
 - f) Bar Lock Couplers by Dayton Superior
 - g) Taper-Lock Couplers by Dayton Superior
 - h) Grip-Twist by BarSplice
 - i) ZAP Screwlok by BarSplice
 - j) BPI Barsplicer by BarSplice
 - k) BarGrip by BarSplice
 - l) 400 and 500 Series by Headed Reinforcement Corp
4. Mechanical and welded tensile mechanical splicing systems shall be capable of developing 125% of the reinforcing steel ASTM specified minimum yield strength (Type 1) except where indicated as Type 2 (100% of specified tensile strength).

5. Mechanical compression splices shall be such that the compression stress is transmitted by end bearing held in concentric contact.
- C. Headed Bars:
1. For bar sizes #11 (ø36) or smaller where specifically detailed on Drawings, mechanical bar terminators shall be used.
 2. Headed bars shall meet the requirements of ASTM A970, Class HA.
 3. Acceptable Products:
 - a) Headed Bars by Dextra
 - b) Lenton Terminator by Erico
 - c) Grip-Twist Doughnut by Bar-Splice
 - d) BPI ButtonHead by BarSplice
 - e) Zap T-Lok by BarSplice
 - f) Taper-Lock End Anchor Disc by Dayton Superior
 - g) 100, 550 and 670 Series by Headed Reinforcement Corp
- D. Weldable Bar Couplers:
1. Acceptable Products:
 - a) Lenton Weldable Couplers by Erico
 - b) DBDI Weldable Coupler by Dayton Superior
 - c) BPI Structural Connector by BarSplice
- E. Slip Dowel Bar/Plate Systems for Slab on Grade Joints
1. Acceptable Products:
 - a) Speed Dowel or Speed Plate by Sika Corporation
 - b) QuicDowel or QuicPlate by BoMetals, Inc.
 - c) Diamond Dowel System by PNA Construction Technologies
- F. Supports for Reinforcement:
1. Types: Bolsters, chairs, spacers, clips, chair bars, and other devices for properly placing, spacing, supporting, and fastening the reinforcement, plastic, plastic protected steel, or epoxy coated to match supported reinforcement.
 2. For Contact with Forms: Use types with not less than 3/32" (2.5mm) of plastic between metal and concrete surface.
 - a) Plastic tips shall extend not less than 1/2" (12mm) on metal legs.
 3. Individual and continuous slab bolsters and chairs shall be of type to suit various conditions encountered and must be capable of supporting 300 pound (1.5kN) load without damage or permanent distortion.
 4. Unless otherwise indicated on Drawings, bottom reinforcing bars in footings shall be supported by precast concrete bricks or individual high chairs with welded sand plates on bottom.

5. For Slabs on Grade: Use supports with sand plates or horizontal runners where base material will not support chair legs.
- G. Deformed Bar Anchors:
1. Type: Automatic end welded, ASTM A 496 quality.
 2. Size and Grade: As indicated on structural Drawings by Nelson Stud Welding.
- H. Anchor rods and dowels:
1. Types and Sizes: Provide sizes and types of anchor rods and dowels as indicated on the Drawings. Each type of anchor shall be manufactured of structural quality steel, designed for cast-in-place concrete applications and be of sizes as indicated on Drawings, complete with washers, nuts, plates and miscellaneous accessories required to meet Contract Document requirements.
 2. Adhesive Anchors for anchor rods and dowels in existing concrete: See Anchorage Accessories.
- I. Prefabricated Bent-In Dowel Keyway Systems and Dowel Bar Replacements:
1. Type, Size and Grade as indicated on Drawings.
 2. Dowels shall be installed in accordance with manufacturer's requirements
 3. Acceptable Products:
 - a) Lenton Form Savers by Erico
 - b) Keyway Splice Box by Meadow Burke
 - c) Metalstrip by Dayton Superior
 - d) DBDI Splice System by Dayton Superior
 - e) D50 DBR Coupler System by Dayton Superior
 - f) BPI Barsplicer by BarSplice
 - g) 300 Series by Headed Reinforcement Corp

2.3 ANCHORAGE ACCESSORIES

- A. General: Miscellaneous anchorage accessories for anchoring structural, architectural, electrical, and mechanical items to poured concrete shall include but not be limited to the following:
1. Concrete Anchors: Headed or bent studs ASTM A 108/Grade 1015 through 1020, minimum yield strength of 50,000 psi (345MPa), minimum tensile strength of 60,000 psi (415MPa).
 2. Anchor Rods: ASTM F1554, Grade as noted on Drawings.
 3. Shallow Embedment Internally Threaded Inserts with $\frac{3}{4}$ " maximum embedment.
 - a) Acceptable Products:
 - i. Mini Undercut + by DeWalt (for post-tensioned slabs and precast hollow core slabs)
 - ii. HDI-P TZ by Hilti (for post-tensioned slabs)

4. Adhesive Anchors:

- a) Basis of Design: See General Notes
- b) Substitution Request: As anchor capacities vary by manufacturer, the following anchors will be considered as a Substitution Request. Refer to project specifications for Substitution Request procedure
 - i. HIT-RE 500-V3 by Hilti, Inc.
 - ii. Epcon C6+ by ITW Red Head
 - iii. Epcon G5 by ITW Red Head
 - iv. Pure 110+ by DeWalt
 - v. SET-3G by Simpson Strong-Tie Co.
- c) The adhesive anchor system used for post-installed anchorage to concrete shall conform to the requirements of ACI 355.4 and commentary and shall possess a current ICC- ES report demonstrating compliance with ACI 318.

5. Expansion Anchors:

- a) Basis of Design: See General Notes
- b) Substitution Request: As anchor capacities vary by manufacturer, the following anchors will be considered as a Substitution Request. Refer to project specifications for Substitution Request procedure.
 - i. Kwik Bolt 1 (KB1) by Hilti, Inc.
 - ii. Power Stud+ SD1 or SD2 by DeWalt
 - iii. Power Stud + SD6 (SS) by DeWalt
 - iv. Trubolt by ITW CCNA
 - v. Strong-Bolt 2 by Simpson Strong-Tie Co.
- c) The expansion anchors used for post-installed anchorage to concrete shall conform to the requirements of ACI 355.2 and commentary and shall possess a current ICC- ES or IAPMO UES report demonstrating compliance with ACI 318.

6. Threaded Screw Anchors:

- a) Basis of Design: See General Notes
- b) Substitution Request: As anchor capacities vary by manufacturer, the following anchors will be considered as a Substitution Request. Refer to project specifications for Substitution Request procedure.
 - i. Screw-Bolt + by DeWalt
 - ii. Tapcon + by ITW Red Head
 - iii. Titan HD by Simpson Strong-Tie Co., Pleasanton, CA

7. Inserts and Coil Rods: Yield strength 65,000 psi (450MPa), ASTM B 633, manufactured by Acrow-Richmond Limited or Dayton Superior

8. Welding Electrodes: AWS 5.5, Series E70.

9. Welded Deformed Bar Anchors: Welded by full-fusion process, as furnished by TRW Nelson Stud Welding Division or equivalent.

B. Dovetail Anchor Slots:

1. Type: Formed 22 gauge (0.85mm) galvanized steel
2. Acceptable Manufacturers:
 - a) Heckmann Building Products
 - b) Hohmann and Barnard,
 - c) BoMetals, Inc..
3. Location of Use: Continuous installation of anchor slots, full height of masonry walls, where masonry walls abut poured concrete walls.
4. Fill slot with temporary filler or cover face opening to prevent intrusion of concrete or debris.
5. Finish: Hot-dip galvanized or zinc-plated steel.
6. Stainless steel anchors are acceptable.

2.4 JOINT FILLERS

A. Permanent Compressible Joint Filler:

1. Acceptable Product: W. R. Meadows: “Cerammar” closed-cell expansion joint filler, ultraviolet stable, minimal moisture absorption, non-impregnated, nonstaining and nonbleeding, inert and compatible with cold-applied sealants.
2. Location of Use: Slabs and curbs as indicated on Drawings or required.
3. Thickness: As indicated on Drawings or required.

B. Temporary Compressible Joint Filler:

1. Type: White molded polystyrene beadboard.
2. Location of Use:
 - a) In slabs, curbs, and walls which must be removed prior to joint sealant installation.
 - b) Vertically to isolate walls from columns or other walls.

C. Semi Rigid Joint Filler:

1. Acceptable Product: Euclid Chemical Company “Euco 700” or “Euco QWIKjoint 200”
2. Acceptable Product: Sika Corporation “Sikadur 51 SL”
3. Acceptable Product: W.R. Meadows Sealtight “Rezi-Weld Flex”

D. Noncompressible Joint Filler:

1. Acceptable Product: Dow Chemical's "STYROFOAM 40" rigid closed-cell extruded polystyrene board, square edges, 40 psi (275kPa) compressive strength, ASTM C 578, Type IV.
2. Thickness: As indicated on Drawings.

3. Location of Use: As indicated on Drawings or required.
- E. Asphalt-Impregnated Joint Filler:
1. Acceptable Product: W.R. Meadows Asphalt Expansion Joint Filler, preformed, ASTM D 994.
 2. Thickness: ½" (12mm) maximum, as indicated on Drawings or required.
 3. Location of Use: Sidewalks at foundation walls and as indicated on Drawings or required.
- F. Asphalt-impregnated fiberboard expansion joint filler for interior work:
1. Type: ASTM D1751.
- G. Self-expanding cork board expansion joint filler for exterior work:
1. Type: ASTM D1752.
- H. Construction Joints:
1. Type: Tongue and groove type profile of galvanized steel, with knock-out holes at 6" (150mm) on center to receive dowelling, complete with anchorage.

2.5 WATERSTOPS

- A. Preformed Swellable Waterproofing Strips especially formulated for concrete cold joints at footings, walls, or slabs.
1. Acceptable Products:
 - a) Volclay Waterstop RX by CETCO Building Materials Group
 - b) Adcor ES by GCP Applied Technologies
 - c) Hydrotite by Sika
 2. Size: 3/4" (20mm) by 3/8" (10mm) strips minimum, 25 ft. (7.5m) long, and weighing at least 0.165 lbs/ft (0.245kg/m).
 3. Location of Use: Concrete cold joints at footings, walls and slab joints.
 4. Comply with manufacturer product application and installation instructions.
- B. Polyvinyl Chloride Waterstops:
1. Type: PVC Waterstops for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections and directional changes. U.S. Corp of Engineers Specification CRD C 572.
 2. Acceptable Products:
 - a) PVC Waterstops" by BoMetals
 - b) Greenstreak by Sika
 - c) Sealtight PVC Waterstops by W.R. Meadows

PART 3 - EXECUTION

3.1 FABRICATION

A. Reinforcing Steel Fabrication:

1. Fabricate in accordance with approved shop Drawings, ACI 315 and Contract Documents.
2. Heating of Reinforcement: Will be permitted only with specific prior approval of the SER.
3. Welding: Comply with ANSI/AWS D1.4; use E9018 electrodes or approved electrodes.
4. Tolerances: Comply with ACI 117.
5. Unacceptable Materials: Reinforcement with any of following defects will not be permitted in Work.
 - a) Bar lengths, depths, and bends exceeding ACI fabrication tolerances.
 - b) Bends or kinks not indicated on Drawings or final shop drawings.
 - c) Bars with reduced cross-section due to excessive rusting or other cause.

B. Welded Wire Reinforcement:

1. Type: As fabricated in accordance with CRSI, unless otherwise noted.

C. Templates:

1. Required for all footing and column dowels, and where required for proper alignment of reinforcing.

D. Assemblies:

1. Fabricate and assemble structural steel items in shop in conformance with AISC and AWS D1.1. Shearing, flame cutting, and chipping shall be done carefully and accurately. Cut, drill, or punch holes at right angles to the surface of the metal. Do not make or enlarge holes by burning. Holes shall be clean-cut without torn or ragged edges.
2. Welding of deformed bar anchors and headed stud anchors shall be installed by full-fusion process equivalent to TRW Nelson Stud Welding Division or KSM Welding Services Division, Omark Industries or Tru-Weld Stud Welding, Medina, OH.
3. Welding of reinforcement shall be done in accordance with AWS requirements. Welding shall be performed subject to the observance and testing by Testing Agency.
4. Galvanizing where required, shall be applied after fabrication and prior to casting concrete.
5. Welding of crossing bars (tack welding) for assembly of reinforcement is not permitted without use of weldable reinforcement and express written consent of SER.

3.2 INSTALLATION OF REINFORCEMENT

A. General:

1. Perform the work of this section in accordance with approved shop drawings, ACI 318 and CRSI recommended practice for “Placing Reinforcing Bars”, for details and methods of reinforcement placement and supports, and as specified.
2. Before placing reinforcement steel, inspect forms for proper fitting and compliance with allowable tolerances.
3. Reinforcement shall be free of form coatings, sealers, powdered and scaled rust, loose mill scale, earth, ice, and other materials which will reduce or destroy bond with concrete.
4. Do not place concrete until the completed reinforcement steel work has been observed and accepted by Owner’s Testing Laboratory.
5. Reinforcement steel is not permitted to be “floated into position”.
6. Bend bars cold.
 - a) Do not heat or flame cut bars.
 - b) No field bending of bars partially embedded in concrete is permitted, unless specifically approved by the SER and tested by Testing Agency for cracks.
7. Weld only as indicated.
 - a) Perform welding per ANSI/AWS D12.1 and/or ANSI/AWS D1.4.
 - b) See structural Drawings for additional requirements.
8. Tag reinforcement steel for easy identification.

B. Placement of Reinforcement Bars:

1. Comply with approved shop drawings, ACI 318 and Contract Documents.
2. Accurately position, support and secure reinforcement in a manner to prevent displacement before and during placement of concrete.
 - a) Place reinforcement bars within tolerances specified in ACI 117.
 - b) Locate and support reinforcement by metal chairs, runners, bolsters, spacers, hangers and other accessories for fastening reinforcing bars and welded wire reinforcement in place.
3. If bars are displaced beyond specified tolerance when relocating the bars to avoid interference with other reinforcement or embedded items, immediately notify the Design Professionals for approval prior to concrete placement.
4. Avoid cutting or puncturing vapor retarder during reinforcement placement.
 - a) Repair damages before placing concrete.
5. Concrete Coverage: Maintain concrete cover around reinforcement as indicated on Drawings.
6. Bar Supports: Use type specified in this section.

7. Tie Wires: After cutting, turn tie wires to the inside of section and bend so that concrete placement will not force ends to be exposed at face of concrete.

C. Placement of Wire Reinforcement:

1. Install in lengths as long as practicable.
2. Support in position adequately to prevent bending of reinforcement between supports before and during placement of concrete.
3. Overlap the wire reinforcement 6" (150mm) or one panel width + 2" (50mm), whichever is larger.
 - a) Securely tie together with wire.
4. Offset laps of adjoining widths to prevent continuous laps in either direction.
5. Locate wire fabric in the top third of slabs, unless noted otherwise on structural Drawings.

D. At Construction Joints:

1. Reinforcement bars and wire reinforcement shall be continuous through construction joints, unless otherwise indicated on Drawings. See Drawings for scheduled lap splices.

E. At Expansion Joints:

1. Reinforcing bars and wire fabric shall NOT be continuous through expansion joints, unless otherwise indicated on Drawings.

F. Splicing:

1. Unless otherwise indicated on Drawings provide lap splices for bar sizes #11 (ø36) and smaller by lapping ends, placing bars in contact, and tying tightly with wire in accordance with requirements of ACI 318 for lap lengths indicated on Drawings.
2. At all #14 (ø43) and #18 (ø57) bars and where mechanical splices are specifically indicated on Drawings, comply with requirements specified in this Specification section under "Mechanical Splicing Systems".
3. Do not splice reinforcement except as indicated on structural Drawings.
4. Tension couplers may be used and installed per manufacturer's specifications where indicated on Drawings or as approved by Engineer.

G. Dowels in Existing Concrete:

1. Install dowels and dowel adhesive in accordance with manufacturer's recommendations.
2. Minimum embedment length shall be 12 bar diameters, unless noted otherwise.

3.3 INSTALLATION OF POST-INSTALLED ADHESIVE ANCHORS

A. General:

1. Post-installed adhesive anchors shall be installed in accordance with the Manufacturer's Printed Installation Instructions (MPII).
2. The adhesive anchors shall be supplied as an entire system. The contractor shall provide all equipment required to install the adhesive anchor in accordance with the MPII.
3. Anchors shall be installed in holes drilled with a rotary impact hammer drill with carbide bit. Contractor shall obtain prior written approval from SER before using rock drilling or core drilling installation methods.
4. Anchor holes shall be thoroughly cleaned and dry prior to adhesive injection, in accordance with the MPII. Anchors to be installed in the adhesive shall be clean, oil-free, and free of loose rust, paint, or other coatings.
5. Concrete shall have a minimum compressive strength of 2500 psi (17MPa).
6. Concrete at time of adhesive anchor installation shall have a minimum of 21 days.
7. Concrete temperature at the time of adhesive anchor installation shall be at least equal to manufacture's requirements, or 50° F (10°C) if no requirement exists.
8. Support the anchor and protect it from disturbance or loading for the full cure time stated by the manufacturer at that base material temperature.
9. Unless specified otherwise in the contract documents, anchors shall be installed perpendicular to the concrete surface. Anchors displaced or disturbed prior to the adhesive cure time shall be considered damaged and reported to the SER (see Observations and Corrections section of 033000).
10. Locate, by non-destructive means, and avoid all existing reinforcement prior to installation of anchors. If existing reinforcement layout prohibits the installation of anchors as indicated in the drawings the contractor shall immediately notify the Design Professionals.
11. Reinforcement bars or all-threaded bars shall not be bent after being adhesively embedded in hardened, sound concrete, unless written approval is given by the SER.
12. All personnel installing anchors shall be trained by the manufacturer on proper installation techniques. Submit for record certificate from training documentation from the manufacturer for each installer on this Project
13. Installation of adhesive anchors horizontally or upwardly inclined and anchors that are designated with a (CERT) after the anchor call-out, shall be performed by personnel certified by the ACI/CRSI Adhesive Anchor Installer Certification program. Submit for record certificate from ACI-CRSI Adhesive Anchor Installation Certification Program for each certified installer on this Project.

3.4 INSTALLATION OF ACCESSORIES AND EMBEDDED ITEMS

- A. Install concrete accessories in accordance with manufacturer's published instructions and Contract Documents.
 1. Set and secure embedments, including embedded plates, bearing plates, and anchor rods, per approved setting drawings and in such a manner to prevent movement during placement of concrete and to allow removal of formwork without damage.
 2. Tolerances: Anchor rod and other embedded items placement tolerances shall comply with AISC 303, "Code of Standard Practice", Section 7.5.
 3. Inspect locations to receive concrete accessories.

4. Immediately notify the Design Professionals in writing of conditions that will adversely affect the Work or fail to meet Contract Document requirements.
5. Do not place concrete until reinforcement, accessories and other built-in items have been inspected and accepted by Testing Agency.

B. Construction and Contraction (Control) Joints:

1. Construction and contraction (control) joints indicated on Drawings are mandatory and must not be omitted.
 - a) Provide construction joints in accordance with ACI 318.
 - b) Roughen surface at construction joints as indicated on the drawings.
 - c) Where specifically indicated on drawings, provide 1-1/2" (40mm) deep key type construction joints at end of each placement for slabs, beams, walls and footings.
 - i. Bevel forms for easy removal.
2. Provide waterstops in construction joints as indicated on the Contract Documents in sizes to suit joint.
3. Install waterstops to form continuous diaphragm in each joint.
4. Support and protect exposed waterstops during progress of Work.
5. Field-fabricate joints in waterstops according to manufacturer's printed instructions.

- C. Coordinate the installation of pipes, bolts, hangers, anchors, flashing and other embedded items with the work of other trades.

3.5 CORRECTIVE MEASURES

- A. Where the Contractor requests that the Design Professionals develop the corrective actions or review corrective actions developed by others, the Design Professional shall be compensated as outlined in Part 3 – CORRECTIVE MEASURES section of Specification 033000.

END OF SECTION

SECTION 033000 – CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 GENERAL

Work of this Section shall conform to requirements of Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections.

1.2 SCOPE

Provide all labor, materials, equipment, services and transportation required to complete all concrete work as shown on Drawings, as specified herein, and as required by the job conditions. This Specification is not intended to address the particular requirements of Architectural Concrete.

This specification is prepared for limited use of concrete at foundation walls and slab-on-grade. Notify structural engineer and request supplemental specifications if scope is expanded to include suspended concrete structures.

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

Submittals	Division 1
Quality Control	Division 1
Quality Assurance: Structural Testing and Inspection	Section 014500
Concrete Formwork	Section 031000
Concrete Reinforcement	Section 032000
Thermal and Moisture Protection	Division 7

1.4 CODES AND STANDARDS

A. Building Code: Concrete work shall conform to the requirements of the Building Code identified on the Structural General Notes, and OSHA requirements, except where more stringent conditions or criteria occur in the standards referenced below and on the Drawings.

B. Standards:

1. ACI 117 – Standard Specifications for Tolerances for Concrete Construction and Materials except as modified by more stringent requirements in the Project Specifications and/or Drawings.
2. ACI 301 – Specifications for Structural Concrete.
3. ACI 318 – Building Code Requirements for Structural Concrete and Commentary.
4. American Concrete Institute “Manual of Concrete Practice”, various committee reports as referenced herein.
5. American Society for Testing and Materials "ASTM Standards in Building Codes", various standards as referenced herein.

C. Definitions:

1. The term “Contract Documents” in this Specification is defined as the design Drawings and the specifications.
2. The term “SER” in this Specification is defined as the Structural Engineer of Record for the structure in its final condition.
3. The term “Design Professionals” in this Specification is defined as the Owner’s Architect and SER.
4. The term “Contractor” in this Specification is defined to include any of the following: General Contractor and their sub-contractors, Construction Manager, Concrete Contractor and their sub-contractors.
5. The term “Testing Agency” in this Specification is defined as an independent testing and inspection service engaged by the Owner for quality assurance testing and inspection of structural construction in accordance with applicable building code provisions and any additional activities listed in the Contract Documents.
6. The terms “for record” and “submit for record” in this Specification are defined as Contractor submittals that do not require a response from the Design Professionals.
7. The term “Working Days” in this Specification is defined as Monday through Friday, excluding federal or state holidays.
8. The term “Delegated Design” in this Specification is defined as a scope of work that meets performance and design criteria established in the Contract Documents and is to be completed by the Contractor’s licensed engineer.

1.5 CONTRACTOR QUALIFICATIONS

- A. The work of this section shall be performed by a company specializing in the type of concrete work required for this Project, with a minimum of 10 years of documented successful experience and shall be performed by skilled workmen thoroughly experienced in the necessary crafts.
- B. Contractor’s testing agency services: Required as specified in Division 1, and herein.

1.6 SUBMITTALS

- A. Required Submittals - Where the SUBMITTALS section of this Specification is in conflict with Division 1 Submittals, the more stringent requirements for the Contractor apply. Required submittal items are listed here; see below for detailed requirements. Do not submit items not requested. Reproduction of Contract Drawings for shop drawings is not permitted.

- (1) Submittal Schedule
- (2) Mix Designs
- (3) Concrete Travel Times to the Project Site
- (4) Hot and Cold Weather Procedures
- (5) Product Data
- (6) Concrete Joint Locations
- (7) Comprehensive Layout Drawings
- (8) Patching Defective Concrete Finishes
- (9) Conduit and Pipes Embedded in Concrete
- (10) Hazardous Materials Notification

1. Submittal Schedule: The contractor shall submit for action a schedule at least twenty (20) working days prior to commencing submittals.
2. Mix Designs: Submit for action concrete mix designs for each type and strength of concrete required for this Project at least thirty (30) days before placing concrete.
 - a) Mix designs shall be prepared or reviewed by an approved independent testing agency retained by the Contractor in accordance with requirements of ACI 301 and ACI 318 and shall be coordinated with design requirements and Contract Documents.
 - b) Before submitting to Testing Agency, submit complete mix design data for each separate mix to be used on the Project in a single submittal.
 - c) Provide a completed "Concrete Mix Design Submittal Form" (attached to the end of this Specification Section) for each proposed concrete mix.
 - d) Mix materials shall be from the same production facility that will be used for this Project.
 - e) Mix Design data shall include but not be limited to the following:
 - i. Locations on the Project where each mix design is to be used corresponding to Structural General Notes on the Drawings.
 - ii. Design Compressive Strength: As indicated on the Drawings.
 - iii. Proportions: ACI 301 and ACI 318.
 - iv. Gradation and quality of each type of ingredient including fresh (wet) unit weight, aggregates sieve analysis.
 - v. Water/cementitious material ratio.
 - vi. Evaluation and classification fly ash in accordance with ASTM D 5759.
 - vii. Report of chemical analysis of fly ash in accordance with ASTM C 618.
 - viii. Classification of slag cement in accordance with ASTM C 989.
 - ix. Slump: ASTM C 143.
 - x. Air content of freshly mixed concrete by the pressure method, ASTM C 231, or the volumetric method, ASTM C 173.
 - xi. Density of Concrete: ASTM C 138.
 - xii. Design strength at 28, 56 or 90 days, as indicated on Contract Documents: ASTM C 39.
 - (1) If early concrete strengths are required, Contractor shall submit trial mixture results as required.
 - xiii. Manufacturer's product data for each type of admixture.
 - xiv. Manufacturer's certification that all admixtures used are compatible with each other.
 - xv. All information indicating compliance with Contract Documents including method of placement and method of curing.
 - xvi. Normalweight Concrete: Density per ASTM C 138. Design the mix to produce the strength, modulus of elasticity and density as indicated on the Contract Documents.
3. Concrete Travel Times to the Project Site: Submit for record.

4. Hot and Cold Weather Procedures: Submit for record written procedures for placement of concrete in hot and cold weather conditions. Hot and Cold weather are as defined in the Concrete Placement section of this Specification.
5. Product Data: Submit for action product data clearly marked to indicate locations to be used and all technical information which specifies full compliance with this section and Contract Documents, including published application instructions, product characteristics, compatibility, and limitations for each of the following:
 - a) Curing compound and liquid sealer densifier. Submit for record to Design Professionals a written statement guaranteeing that the compound will not leave discoloration on concrete to be left exposed, or affect the bond for paint or other applied finishes. Include provision in written statement that in the event of failure of applied finishes to bond to membrane cured concrete, to remove the curing compound and leave suitable surfaces for bonding such finishes.
 - b) Absorptive covers and moisture retaining covers.
 - c) Vapor Retarder: See Division 7, Thermal and Moisture Protection.
 - d) Grout: Submittal of grout by manufacturers not listed herein must be accompanied by independent certification of ASTM C 1107 compliance without modification of standard methods.
 - e) Other products proposed by Contractor.
6. Concrete Joint Locations: Submit for action plans indicating locations and details of construction joints, contraction joints, waterstops, sleeves, embedments, etc. that interact with the joints. Contractor to coordinate joint location with reinforcement shop drawings. Reinforcement shop drawings shall indicate additional reinforcement bars where required at construction joints.

Joint locations for concrete slabs to receive a terrazzo or similar finish subject to reflective cracking must be coordinated with layout of finish drawings.
7. Comprehensive Layout Drawings: Submit for action comprehensive layout drawings (a single drawing per area/element):
 - a) Drawings shall show openings in structural members, including floor slab, shear walls, columns and beams.
 - b) Drawings shall consolidate the work of all trades and shall be coordinated by the Contractor.
 - c) Drawings shall show concrete accessories and embedded items, including fabrication details of items to be placed (exclusive of reinforcement).
 - d) Submit with or prior to reinforcement and formwork submittals for same element/area.
8. Patching Defective Concrete Finishes: Submit for action procedures, intended locations, and product information.
9. Conduit and Pipes Embedded in Concrete: Submit for action layout of embedded conduit and pipes.
10. Hazardous Materials Notification: Submit for record. In the event no product or material is available that does not contain hazardous materials as determined by

the Owner, a "Material Safety Data Sheet" (MSDS) equivalent to OSHA Form 20 shall be submitted for that proposed product or material prior to installation.

B. Submittal Process

1. Submittal of shop drawings and other submittals by the Contractor shall constitute Contractor's representation that the Contractor has verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each drawing with other Drawings and other trades. The Contractor shall place their shop drawing stamp on all submittals confirming the above.
2. Shop drawings: Submit in complete packages so that individual parts and the assembled unit may be reviewed together. This Specification Section and the applicable Drawings used in the development of the shop drawings shall be referenced on each shop drawing to facilitate checking.
3. The Contractor shall submit to the Design Professionals one (1) electronic copy for shop drawing review. The naming convention of each drawing must follow the submittal numbering system and include the submittal number, Specification number, revision number and drawing number in the prefix of the drawing name.
4. The Contractor shall allow at least [ten (10)] working days between receipt and release by the SER for the review of shop drawings and submittals.
5. All modifications or revisions to submittals and shop drawings must be clouded, with an appropriate revision number clearly indicated. The following shall automatically be considered cause for rejection of the modification or revision whether or not the drawing has been approved by the Design Professionals:
 - a) Failure to specifically cloud modifications
 - b) Unapproved revisions to previous submittals
 - c) Unapproved departure from Contract Documents
6. Resubmittals: Completely address previous comments prior to resubmitting a drawing. Resubmit only those drawings that require resubmittal. Do not include new content not previously reviewed.
7. Resubmittals Compensation: The Contractor shall compensate the Design Professionals for submittals that must be reviewed more than twice due to Contractors' errors. The Contractor shall compensate the Design Professionals at standard billing rates plus out-of-pocket expenses incurred at cost + 10%.
8. The Contractor shall deliver to the Design Professionals at the completion of the job two (2) copies of the electronic version of the final as-built shop drawings on a CD-ROM or other media acceptable to the Design Professionals.

C. SER Submittal Review

1. The Design Professionals' review and approval of shop drawings and other submittals shall be for general conformance with the design intent of the work and with the information given in the Contract Documents only and will not in any way relieve the Contractor or the Contractor's Engineer from:
 - a) Conforming to the Contract Documents.
 - b) Coordination with other trades.

- c) Responsibility for all required detailing and proper fitting of construction work.
 - d) The necessity of furnishing material and workmanship required by Drawings and Specifications which may not be indicated on the shop drawings.
 - e) Control or charge of construction means, methods, techniques, sequences or procedures, for safety precautions and programs in connection with the work.
2. TYPE 1 – Structural Submittal Review Stamp: For shop drawings for building elements designed by the SER, the responses on the shop drawing review stamp used by the SER require one of the following actions:
- a) APPROVED indicates that the SER has found that the information presented on the shop or erection drawing appears to conform to the requirements of the Contract Documents. Fabrication, manufacture or construction of the elements of work shown in the shop drawing may proceed, provided that work is in compliance with the Contract Documents.
 - b) APPROVED AS NOTED indicates that the SER requires the shop or erection drawing to be corrected to reflect the notes and comments shown. Fabrication, manufacture or construction of the elements of work shown in the shop drawing may proceed, provided that work is in compliance with the notations shown on the shop drawings and the Contract Documents. Promptly resubmit the corrected shop or erection drawing for record.
 - c) REVISE and RESUBMIT indicates that the SER requires resubmission of the shop or erection drawing after correction per notes and comments. None of the elements of work shown on the shop drawing shall be fabricated, manufactured or constructed until the Contractor has received a returned shop drawing marked Approved or Approved as Noted.
 - d) NOT APPROVED indicates that the shop or erection drawing does not conform to the Contract Documents and must be extensively revised before re-submittal. None of the elements of work shown on the shop drawing shall be fabricated, manufactured or constructed until the Contractor has received a returned shop drawing marked Approved or Approved as Noted.
3. TYPE 2 – Delegated Design Review Stamp: For submittals for building elements which are not designed by the SER but are delegated design items, or for items that do not form part of the completed structural system but impose loads on the structure, or for construction items or activities which have an effect on the final structure. The responses on the stamp used by the SER require one of the following actions:
- a) NO EXCEPTIONS indicates that the SER has found that the information presented on the submittal appears to conform to the requirements of the Contract Documents. Fabrication, manufacture or construction of the elements of work shown in the shop drawing may proceed, provided that work is in compliance with the Contract Documents.

- b) EXCEPTIONS NOTED indicates that the SER requires the submittal be corrected to reflect the notes and comments shown. Fabrication, manufacture or construction of the elements of work shown in the shop drawing may proceed, provided that work is in compliance with the notations shown on the shop drawings and the Contract Documents. Promptly resubmit the corrected document for record.
- c) REJECTED indicates that the SER requires resubmission of the submittal after correction per notes and comments. None of the elements of work shown on the shop drawing shall be fabricated, manufactured or constructed. Contractor to revise and resubmit until SER response of No Exceptions or Exceptions Noted is received.

D. Substitution Request

- 1. Requests for any departure from Contract Documents must be submitted in writing by the Contractor and accepted in writing by the Design Professionals, prior to receipt of submittals.
- 2. All substitutions must be requested using the structural substitution request form included at the end of this section. Acceptance using the structural substitution request form indicates acceptability of the structural concept only. Contractor must submit shop drawings reflecting accepted substitutions for review in accordance with this Specification. The structural substitution request form, even if accepted, does not constitute a change order.
- 3. Accepted substitutions or modifications shall be coordinated and incorporated in the work at the sole expense of the Contractor.
- 4. The acceptance by the Design Professionals of a specific and isolated request by the Contractor to deviate from these requirements does not constitute a waiving of that requirement for other elements of, or locations in the project, unless specifically addressed as such and permitted by the Design Professionals in writing.
- 5. Compensation for Additional Services: Should additional work by Design Professionals such as design, documentation, meetings and/or site visits be required which are necessitated for the review and/or incorporation of the Contractor-requested substitution, including indirect effects on other portions of the work, the Contractor is responsible for paying for additional work performed by the Design Professionals at the standard billing rates plus out-of-pocket expenses incurred at cost + 10%. Additional costs for testing and inspection by the Owner shall also be compensated by the Contractor.
- 6. Contractor is responsible for means and methods and any impacts on other portions of the work that may arise from this substitution.

E. Request for Information (RFI)

- 1. RFIs shall be submitted by the Contractor. RFIs submitted by other entities will be returned with no response.
- 2. Limit RFI to one subject.
- 3. Submit RFI immediately upon discovery of the need for interpretation or clarification of the Contract Documents. Submit RFI within timeframe so as not to delay the Construction Schedule while allowing the full response time described below.

4. The response time for answering an RFI depends on the category in which it is assigned.
 - a) Upon receipt by the SER, each RFI will be assigned to one of the following categories:
 - i. No cost clarification
 - ii. Shown in Contract Documents
 - iii. Change to be issued in future document revision
 - iv. Previously answered
 - v. Information needs to be provided by others
 - vi. Request for corrective field work
 - vii. Request for substitution
 - b) RFIs in the first five categories listed above will be turned around by the SER on average of [five (5)] working days.
 - c) RFIs in the last two categories listed above will be immediately rejected and must be submitted as submittals or requests for substitution.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with General Conditions and Division 1.
- B. Storage:
 1. Store materials in accordance with ACI 304R.
 2. Store cement in weather-tight buildings, bins or silos that will exclude moisture and contaminants.
 3. Store admixtures to avoid contamination, evaporation, damage, and in accordance with manufacturer's temperature and other recommendations.
 4. Keep packaged material in original containers with seals unbroken and labels intact until time of use.
- C. Handling:
 1. Handle fine and coarse aggregates as separate ingredients.
 2. Arrange aggregate stockpiles to avoid excessive segregation, and prevent contamination with other materials or with other sizes of like aggregates.
 3. Do not use frozen or partially frozen aggregates.
 4. Allow sand to drain until it has reached relatively uniform moisture content before use.
 5. Protect liquid admixtures from freezing and temperature changes that would adversely affect characteristics, and in accordance with manufacturer's recommendations.

1.8 PRE-CONCRETE CONFERENCE

- A. At least 30 working days prior to the start of concrete construction, the Contractor shall hold a meeting to review the proposed concrete mix designs and to determine the procedures for producing proper concrete construction. The Contractor shall notify the Design Professionals of the meeting and require responsible representatives of every

party who is concerned with the concrete Work to attend the conference, including but not limited to the following:

1. Contractor's superintendent.
2. Testing Agency representative responsible for field quality control.
3. Concrete subcontractor.
4. Ready-mix concrete producer.
5. Admixture manufacturer(s).
6. Architect.
7. Structural Engineer.

B. Minutes of the meeting shall be recorded and distributed by the Contractor to all parties concerned within five working days of the meeting. One copy of the minutes shall also be furnished to the following:

1. Design Professionals.
2. Owner's Representative.

C. The minutes shall include a statement by the concrete contractor and admixture manufacturer(s) indicating that the proposed mix design and placing, finishing, and curing techniques can produce the concrete properties and quality required by these Specifications.

1.9 QUALITY ASSURANCE BY OWNER'S TESTING AGENCY

A. See Section 014500.

1.10 QUALITY CONTROL BY CONTRACTOR

A. The Contractor shall provide a program of quality control to ensure that the minimum standards specified herein are attained.

B. The Owner's general review during construction and activities of the Testing Agency are undertaken to inform the Owner of performance by the Contractor but shall in no way replace or augment the Contractor's quality control program or relieve the Contractor of total responsibility for quality control.

C. The Contractor shall immediately notify the Design Professionals of any deficiencies in the work which are departures from the Contract Documents. The Contractor shall propose corrective actions and their recommendations in writing and submit them for review by the Design Professionals. After proposed corrective action is accepted by the Design Professionals and Owner, the Contractor shall correct the deficiency at no cost to the Owner. Where the Contractor requests that the Design Professionals develop the corrective actions or review corrective actions developed by others, the Design Professional shall be compensated as outlined in the OBSERVATIONS AND CORRECTIONS BY DESIGN PROFESSIONALS section of this Specification.

1.11 OBSERVATIONS AND CORRECTIONS BY DESIGN PROFESSIONALS

A. Observations: The Design Professionals will observe the construction for general compliance with the provisions of the Contract Documents during various phases of construction.

- B. Corrections by Design Professionals: See Part 3 - CORRECTIVE MEASURES section of this Specification.

1.12 PERMITS AND WARRANTY

- A. Permits: The Contractor shall apply for, procure, renew, maintain, and pay for all permits required by City, State, or other governing authorities, necessary to execute work under this Contract. Contractor shall furnish copies of all permits to the Owner and Design Professionals.
- B. Warranty: Comply with General Conditions, agreeing to repair or replace specified materials or work that has failed within the warranty period. Failures include but are not limited to the following:
1. Oily, waxy or loose residue which may interfere with the bonding or discoloration of various applied Architectural finish materials.
 2. Discoloration of concrete surfaces scheduled to remain exposed as a finish.
 3. Areas which show surface failure or defects.
 4. Areas which puddle water.
 5. Areas which are not properly prepared to receive Architectural finish materials. If necessary, the Contractor, at his own expense, shall have the Testing Agency perform appropriate tests for bond and discoloration.
 6. Patches that become crazed, cracked or sound hollow when tapped.
 7. Self-leveling concrete topping that has cracked, spalled and/or not performed in accordance with manufacturer's design criteria.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS AND PRODUCTION

- A. Portland Cement:
1. ASTM C150, Type I or Type II
 2. ASTM C150, Type III, High-early Strength Portland Cement may be used subject to review and approval of the SER. The specified 28-day concrete compressive strength shall occur within 7 days for concrete using Type III Portland Cement.
 3. Provide the same brand of Portland Cement from a single source throughout the project, as required to meet Design Professionals' requirements.
- B. Blended Hydraulic Cement:
1. ASTM C595, Type IL, Portland-Limestone Cement
 2. ASTM C595, Type IS, Portland-Slag Cement
 3. ASTM C595, Type IP, Portland-Pozzolan Cement
 4. ASTM C595, Type IT, Ternary-Blended Cement
 5. ASTM C595, Type IT (HS) plus pozzolan or slag cement for Exposure Class S3]
- C. Aggregates for Normalweight Concrete:
1. ASTM C 33

2. Fine Aggregate: Natural sand, or sand prepared from stone or gravel, clean, hard, durable, uncoated and free from silt, loam and clay.
 3. Do not use fine or coarse aggregates that contain substances that cause spalling.
 4. Maximum coarse aggregate size shall conform to the requirements as specified in ACI 301 but shall not exceed the following:

Size no. 57 (25mm max) for footings, drilled piers and caissons
Size no. 67 (20mm max) for all other locations
 5. Contractor shall furnish concrete with maximum 3/8" (10mm) aggregate at no additional cost to the Owner if areas of high reinforcement density require it for placement and consolidation.
- D. Water: ASTM C 1602. Clean, and free from injurious amounts of oil, acids, alkali, salts, organic material, or other deleterious materials.
- E. Supplementary Cementitious Material
1. Fly Ash: ASTM C 618, Class C or Class F.
 2. Slag Cement: ASTM C 989.
 3. Silica Fume (Microsilica): ASTM C1240.
 - a) Acceptable Products:
 - i. Force 10,000 D by GCP Applied Technologies, Inc.
 - ii. Eucon MSA by Euclid Chemical Company
 - iii. MasterLife SF 100 by Master Builders Solutions
 - iv. Sikacrete 950 DP by Sika Corporation
 4. Metakaolin: ASTM C 618, Class N.
 - a) Acceptable Products:
 - i. MasterLife MK828 by Master Builders Solutions
 - ii. HRMK 100 by GCP Applied Technologies, Inc.
 - iii. Sikacrete M-100 by Sika Corporation
 5. For concrete assigned to Exposure Classes F1 and F2, as defined in ACI 318, there is no limit to the maximum amount of supplementary cementitious materials included in the mix as a percentage of total cementitious materials by mass.
 6. For concrete assigned to Exposure Class F3 as defined in ACI 318, limits to the maximum amount of supplementary cementitious materials included in the mix as a percentage of total cementitious materials by mass are as follows:
 - a) Fly ash or other pozzolans conforming to ASTM C618 = 25%
 - b) Slag cement = 50%
 - c) Silica fume = 10%
 - d) Total of fly ash or other pozzolans and silica fume = 35%
 - e) Total of fly ash or other pozzolans, slag cement and silica fume = 50%

- f) The maximum percentage limits listed above shall include the supplementary cementitious materials used in the manufacture of ASTM C595 blended cements.
 - 7. The fly ash or natural pozzolan supplier shall have an effective quality control program in place to guard against contamination of the fly ash and assure compliance with Specifications.
 - 8. Supplementary Cementitious Materials shall be from one source throughout the project. Substitution of sources will be acceptable only if testing of concrete mixes containing the substituted material show similar test results and if the color of concrete produced with the substituted material matches the color of previously poured concrete to the satisfaction of the Architect.
- F. Ready Mixed Concrete:
- 1. Shall be batch-mixed and transported in accordance with ASTM C 94.
- G. Self-Consolidating Concrete shall not be used.

2.2 CONCRETE MIX DESIGN

- A. Concrete Strength:
- 1. Shall be as indicated on the Structural Drawings
 - 2. Where concrete strength is not indicated on the drawings, the minimum concrete strength for exposure classes as defined in ACI 318 are as follows:
 - a) F0, S0, W0, C0, C1 = 2500 psi
 - b) F1 = 3500 psi
 - c) S1, W1 = 4000 psi
 - d) F2, S2, S3, = 4500 psi
 - e) F3, C2 = 5000 psi
- B. Concrete Density (Unit Weight):
- 1. Shall be as indicated on the Structural Drawings
- C. Air Entrainment
- 1. For concrete exposed to freeze/thaw cycles and/or deicing chemicals (ACI 318 Exposure Classes F1, F2, F3), and concrete intended to be watertight, provide entrained air content of $6\% \pm 1.5\%$, unless specified otherwise. This includes, but is not limited to, concrete at the following locations:
 - a) Concrete at the exterior of the structure with at least one surface exposed to weather, such as exterior face of grade beams, foundation walls, exterior walls and parapets, exposed columns and edge beams.
 - b) Floor framing and ramps in parking garages.
 - c) Loading docks.
 - d) Balconies and terraces with no waterproofing membrane.

2. For lightweight concrete less than 120 pcf (19 kN/m³) density, air content may be up to 7% regardless of exposure condition.
3. For concrete with a specified compressive strength (f'_c) greater than 5000 psi (35MPa), required air content may be reduced to $5\% \pm 1.5\%$.
4. Entrained air content noted above shall occur at point of delivery.
5. No entrained air content is required for foundations with no surface exposed to weather.
6. All interior steel trowel finished, normal weight slabs shall have a maximum air content of 3%.

D. Water-Cementitious Material Ratio (w/cm) for Normalweight Concrete

1. The total combined weight of Portland cement and all other supplementary cementitious material shall be used to determine the w/cm.
2. The w/cm shall not exceed the values indicated below, including any water added to meet specified slump in accordance with the requirements of ASTM C 94.
3. Based on Exposure Class, as defined in ACI 318, the following maximum w/cm shall be provided:
 - a) Exposure Class F0, S0, W0, C0, C1, no maximum
 - b) Exposure Class F1, max w/cm=0.55
 - c) Exposure Class S1, W1, max w/cm=0.50
 - d) Exposure Class F2, S2, S3, max w/cm=0.45
 - e) Exposure Class F3, C2, max w/cm=0.40

E. Slump

1. Concrete design mixes shall be proportioned to meet the following slump limitations. Slump should be measured as described in the Testing Agency responsibilities:
 - a) Concrete with high range or mid range water-reducing admixture: Concrete slump prior to addition of high range water-reducing admixture shall not exceed 3" +/- 1" (75mm) for normalweight concrete and 4" +/- 1" (100mm) for lightweight concrete. After addition of water-reducing admixture, the concrete shall have a maximum slump of 9" +/- 1" (225mm) unless otherwise approved by the SER.
 - b) Concrete without a water-reducing admixture: Slump shall not exceed 4" +/- 1".

2.3 ADMIXTURES

A. General:

1. Admixtures specified below can be used only when established in the mix design with Design Professionals' prior written approval.
2. Each admixture approved by Design Professionals shall be used in strict compliance with manufacturer's published instructions.
3. Concrete supplier shall certify all admixtures to be compatible with each other. (See Submittals Section in Part 1)

B. Air Entraining Admixture:

1. ASTM C 260
2. Acceptable Products:
 - a) MasterAir Series by Master Builders Solutions
 - b) Darex Series or Daravair Series by GCP Applied Technologies, Inc.
 - c) EUCON AEA –92 or EUCON Air Series by Euclid Chemical Company
 - d) AIR Series or AEA-14 by Sika Corporation

C. Water-Reducing Admixture:

1. ASTM C 494, Type A
2. Acceptable Products:
 - a) MasterPozzolith Series by Master Builders Solutions
 - b) EUCON NW or EUCON WR 91 by Euclid Chemical Company
 - c) WRDA Series, Zyla Series or Mira Series by GCP Applied Technologies, Inc.
 - d) Plastocrete Series by Sika Corporation

D. Retarding Admixture:

1. ASTM C 494, Type B
2. Acceptable Products:
 - a) MasterSet R Series or MasterSet DELVO Series by Master Builders Solutions
 - b) EUCON RETARDER 100 by Euclid Chemical Company
 - c) Daratard 17 by GCP Applied Technologies, Inc.
 - d) Plastiment Series by Sika Corporation

E. Non Corrosive Accelerating Admixture:

1. ASTM C 494, Type C
2. Acceptable Products:
 - a) MasterSet FP 20 or MasterSet NC 534 by Master Builders Solutions
 - b) ACCELGUARD 80, ACCELGUARD NCA or ACCELGUARD 90 by Euclid Chemical Company
 - c) Daraset” Series, Polarset, or DCI by GCP Applied Technologies, Inc.
 - d) Sikaset Series or Rapid-1 by Sika Corporation

F. Water-Reducing and Retarding Admixture:

1. ASTM C 494, Type D
2. Acceptable Products:
 - a) MasterSet R Series or MasterSet DELVO Series by Master Builders Solutions
 - b) EUCON RETARDER 75 or EUCON DS by Euclid Chemical Company
 - c) Daratard 17 or Recovery Series by GCP Applied Technologies, Inc.

- d) Plastiment Series by Sika Corporation
- G. Water-Reducing and Accelerating Admixture:
 - 1. ASTM C 494, Type E
 - 2. Acceptable Products:
 - a) MasterSet FP 20 by Master Builders Solutions
 - b) ACCELGUARD 80 or ACCELGUARD 90 by Euclid Chemical Company
 - c) Libricon NCA by GCP Applied Technologies, Inc.
 - d) Sikaset NC by Sika Corporation
- H. Mid-Range Water-Reducing Admixture:
 - 1. ASTM C 494, Type A
 - 2. Acceptable Products:
 - a) MasterPolyheed Series by Master Builders Solutions
 - b) Daracem or Mira by GCP Applied Technologies, Inc.
 - c) Sikaplast Series or Sikament Series by Sika Corporation
 - d) Eucon MR or Eucon MRX by Euclid Chemical Company
- I. High-Range Water-Reducing Admixture:
 - 1. ASTM C 494, Type F
 - 2. Acceptable Products:
 - a) MasterGlenium Series by Master Builders Solutions
 - b) EUCON 37 or PLASTOL SERIES by Euclid Chemical Company
 - c) Daracem or ADVA Series by GCP Applied Technologies, Inc.
 - d) Viscocrete Series or Sikament Series by Sika Corporation
- J. Workability Retaining Admixture:
 - 1. ASTM C494, Type S
 - 2. Acceptable Products:
 - a) MasterSure Z-60 by Master Builders Solutions
 - b) Visco Flow-2020 by Sika Corporation
- K. Permeability-Reducing Admixture:
 - 1. ASTM C494, Type S
 - 2. Shall be a Portland cement based crystalline capillary waterproofing admixture that reacts in concrete to form non-soluble crystalline hydration products in the capillary pores of concrete,
 - 3. Acceptable Products:
 - a) MasterLife 300D and 300C by Master Builders Solutions
 - b) Eucon Vandex AM-10 by Euclid Chemical Company
 - c) Admix C-Series by Xypex

- L. Viscosity Modifying Admixture (VMA) for Self-Consolidating Concrete (SCC):
1. ASTM C 494, Type S
 2. Acceptable Products:
 - a) MasterMatrix VMA Series by Master Builders Solutions
 - b) V-MAR3 by GCP Applied Technologies, Inc.
 - c) EUCON ABS or EUCON WO or VISCTROL by Euclid Chemical Company
 - d) Sika Stabilizer-4R by Sika Corporation
- M. Corrosion Inhibiting Admixtures:
1. Calcium Nitrite Based: ASTM C 1582 and ASTM C 494, Type C, 30% + 2% solution
 - a) Acceptable Products:
 - i. DCI or DCI-Sby GCP Applied Technologies, Inc.
 - ii. MasterLife CI 30 by Master Builders Solutions
 - iii. EUCON CIA by Euclid Chemical Company
 - iv. Sika-CNI by Sika Corporation
 2. Amine Carboxylate Based: ASTM C 1582, which includes ASTM C-494 amine carboxylate
 - a) Acceptable Product:
 - i. MCI 2005, MCI 2005 NS, MCI 2006 or MCI 2006 NS by Cortec Corporation
 3. Amino Alcohol Based:
 - a) Acceptable Product:
 - i. FerroGard 901 by Sika Corporation
 - ii. MasterLife CI 222 by Master Builders Solutions
- N. Shrinkage Reducing/Compensating Admixtures:
1. ASTM C 494, Type S
 2. Acceptable Products:
 - a) Eclipse Floor 200 or Eclipse 4500 (for use with air-entrained concrete) by GCP Applied Technologies, Inc.
 - b) Conex or EUCON SRA Floor or EUCON SRA-XT (for use with air-entrained concrete) by Euclid Chemical Company
 - c) MasterLife SRA Series or MasterLife CRA 007 by Master Builders Solutions
 - d) SikaControl 75 by Sika Corporation
 - e) PREVent-C by PremierCPG

O. Alkali-Silica Reaction Inhibiting Admixture:

1. ASTM C 494, Type S
2. Shall contain a nominal lithium nitrate content of 30 percent.
3. Dosage to be determined in accordance with US Army COE CRD-C662
4. Acceptable Products:
 - a) MasterLife ASR 30 by Master Builders Solutions
 - b) Eucon Integral ARC by Euclid Chemical Company
 - c) RASIR by GCP Applied Technologies

P. Porosity Inhibiting Admixture:

1. ASTM C494, Type S
2. Sodium silicate free
3. Manufacturer must be able to provide a flooring adhesion guarantee and life of the concrete vapor transmission warranty. In order to obtain warranty, product must be installed in compliance with the manufacturer's published data sheet including but not limited to proper on-site representation, mix design review, concrete testing and installation of vapor retarder for slabs on ground.
4. Acceptable Products:
 - a) Barrier One by Concrete Moisture Solutions, Inc.
 - b) MVRA 900 by ISE LOGIK Industries

2.4 ADHESIVES

A. Epoxy Bonding Agent for bonding hardened concrete to hardened concrete (existing concrete damp or dry, at least 28 days old, no surface water):

1. ASTM C 881 Type IV, Grade 1, 2 or 3, Class B or C as appropriate for field temperature conditions.
2. Acceptable Products:
 - a) Acceptable Product: Dural 452 Series by Euclid Chemical Company
 - b) Rezi-Weld 1000 by W. R. Meadows
 - c) Sure Bond J58 by Dayton Superior

B. Epoxy Bonding Agent for bonding freshly mixed concrete to hardened concrete (existing concrete damp or dry, less than 28 days old, no surface water):

1. ASTM C 881, Type V, Grade 1, 2, or 3, Class B or C as appropriate for field temperature conditions.
2. Acceptable Products:
 - a) Dural 452 Gel or 452 MV by Euclid Chemical Company
 - b) Sikadur 32 Hi-Mod by Sika Corporation
 - c) Rezi-Weld 1000 by W. R. Meadows
 - d) Sure Bond J58 by Dayton Superior

- C. Anti-Corrosive Epoxy Modified Cementitious Bonding Compound and Corrosion Protection of Reinforcement (bonding agent for existing concrete saturated surface dry, no surface water):

This adhesive shall be a water-based epoxy/cementitious compound for adhesion and corrosion protection of reinforcing members (20 hour maximum open time).

1. Acceptable Products:
 - a) DURALPREP AC by Euclid Chemical Company
 - b) ARMATEC 110 EpoCem by Sika Corporation
 - c) MasterEmaco P124 by Master Builders Solutions
 - d) Perma Prime 3C by Dayton Superior

2.5 CURING COMPOUNDS AND SEALERS

- A. Interaction with finishes:

1. See architectural Drawings for finish material applied over concrete.
2. Use only curing and sealer compounds that are compatible with finish, waterproofing or roofing material.

- B. Curing and Sealing Compound (VOC Compliant, 350 g/l) :

1. ASTM C1315, Type I, Class A and/or ASTM C 309, Type 1, Class A or B
2. Water based acrylic, clear, 25% solids curing and sealing compound.
3. Acceptable Products:
 - a) Super Diamond Clear VOX by Euclid Chemical Company
 - b) Cure & Seal 1315 J22WB by Dayton Superior
 - c) VOCOMP-25 by W. R. Meadows
 - d) Dress & Seal WB 30 or Lumiseal WB by Laticrete International, Inc.

- C. Curing Compound-Dissipating/Strippable (VOC Compliant, 350 g/l):

1. ASTM C 309, Type I, Class A or B
2. Water based resin, clear curing compound that begins to dissipate when exposed to UV light and traffic.
3. Acceptable Products:
 - a) Kurez DR VOX by Euclid Chemical Company
 - b) Clear Resin Cure J11W by Dayton Superior
 - c) 1100 by W. R. Meadows

- D. Curing and Durability-Increasing Compound, Spray Applied

1. Shall conform to state and federal VOC regulations with zero VOC content.
2. Not to be used with Moisture Vapor Reducing Admixtures, Integral Waterproofing Admixtures, or Latex Admixtures
3. Acceptable Products:
 - a) P3 Protect by Spray-Lock Concrete Products

E. Surface Applied Vapor Emission Mitigation

1. Shall conform to state and federal VOC regulations with zero VOC content.
2. Shall provide a 15 year warranty against flooring failure due to negative-side moisture vapor migration of moisture-born alkalinity.
3. Acceptable Products:
 - a) CS2000 by Creteseal
 - b) SCP 327 by Spray-Lock Concrete Protection

F. Liquid Densifier/Sealer:

1. The liquid densifier compound shall be a silicate based compound that penetrates and chemically hardens concrete surfaces.
2. Acceptable Products:
 - a) Euco Diamond Hard by Euclid Chemical Company
 - b) Acceptable Product: Dayton Superior “Densifier J13”
 - c) MasterKure HD 200WB by Master Builders Solutions
 - d) Liqui-Hard by W. R. Meadows

G. Evaporation Retarder:

1. Acceptable Products:
 - a) MasterKure ER50 by Master Builders Solutions
 - b) Eucobar by Euclid Chemical Company
 - c) Sika Film by Sika Corporation

2.6 DRY SHAKE HARDENERS

A. Mineral Aggregate Hardener:

1. The specified mineral aggregate hardener shall be a factory-blended mixture of specially processed graded non-metallic aggregate.
2. Acceptable Products:
 - a) Euclid Chemical Company, "Surflex" to be used with “Kurez DR VOX”
 - b) MasterTop 100 to be used with “MasterKure CC 200WB by Master Builders Solutions
 - c) Quartzplate FF to be used with Dress & Seal WB 30 by Laticrete International, Inc.

B. Non-Oxidizing Metallic Hardener:

1. The specified non-oxidizing metallic floor hardener shall be a mixture of specially processed non-rusting aggregates.
2. Acceptable Products:
 - a) Euclid Chemical Company, “Diamond-Plate” to be used with “Kurez DR VOX”

- b) MasterTop 210COR to be used with “MasterKure CC 200WB by Master Builders Solutions
- c) Emeryplate FF to be used with Lumiseal WB by Laticrete International, Inc.

2.7 MISCELLANEOUS CONCRETE AND CONCRETE RELATED PRODUCTS

A. Cementitious Non-Shrink Grout:

- 1. Provide pre-packaged high-precision, non-shrink, non metallic grout.
- 2. See General Notes for grout minimum compressive strength.
- 3. ASTM C 1107
- 4. Acceptable Products:
 - a) MasterFlow 928 by Master Builders Solutions
 - b) Dry Pack Grout or HI-FLOW GROUT by Euclid Chemical Company
 - c) Five Star Grout by Five Star Products
 - d) Sikagrout 328 by Sika Corporation
 - e) Duragrout by Laticrete International, Inc.

B. Self-Leveling Concrete Topping - Underlayment for Interior Applications:

- 1. Use self-leveling underlayment concrete formulated to level concrete floors without shrinking, cracking or spalling, and capable of being placed from feathered edge to 1" (25mm) thickness without aggregate in one pour. If greater than 1" (25mm) thickness is required, aggregate shall be extended with aggregate in accordance with manufacturer's requirements. Appropriate primer shall be utilized for all underlayment applications.
- 2. Acceptable Products:
 - a) K-15 by Ardex
 - b) Flo-Top or Super Flo-Top by Euclid Chemical Company
 - c) Sika Level Series by Sika Corporation

C. Moisture-Retaining Covers:

- 1. ASTM C171
- 2. A naturally colored, non-woven polypropylene fabric with a non-perforated reflective polyethylene coating containing stabilizers to resist degradation from ultraviolet light. Fabric shall exhibit low permeability and high moisture retention.
- 3. Acceptable Products:
 - a) Hydracure S-16 by PNA Construction Technologies, Inc.
 - b) Transguard 4000 by Amorlon a Division of Reef Industries , Inc.
 - c) UltraCure NCF by Sika Corporation
 - d) Top Cure by Transshield

D. Expanded Polystyrene (EPS) used as Fill - Geofoam

- 1. Material: Rigid, closed cell polystyrene blocks formed by expansion of polystyrene beads by steam.

2. Comply with the requirements of ASTM D 6817
 3. Unless noted otherwise on the drawings, provide the following types of EPS:
 - a) Fill between a lower slab and a raised slab area: EPS12 -2.2 psi (15 kPa) compressive resistance minimum at 1% deformation, 10 psi (70 kPa) flexural strength minimum
 - b) Fill below exterior floor slabs or slabs with truck loading: EPS19 - 5.8 psi (40 kPa) compressive resistance minimum at 1% deformation, 30 psi (200 kPa) flexural strength minimum
 4. Thickness as indicated on Drawings.
 5. Execution: Conform to manufacturer's instructions regarding preparation, installation and protection
 6. Gripper plates shall be used as needed to restrain EPS from moving laterally in multi-layer applications
 7. Contractor shall sequence soil or concrete topping placement to avoid EPS block shift or flotation.
 8. Submit the following for review:
 - a) Manufacturer's product literature including physical properties in compliance with ASTM D 6817 and type specified
 - b) 10 year physical property warranty
 9. Submit the following for record:
 - a) Summary of test compliance with specified performance characteristics and physical properties
 - b) Product Certificates showing evidence of third party quality control
 10. Acceptable Manufacturers:
 - a) ACH Foam Technologies
 - b) Atlas EPS
 - c) Universal Construction Foam
- E. Vapor Retarder: See Division 7, Thermal and Moisture Protection. Where not specified in Division 7, see minimum requirements below:
1. Minimum 15-mil thick polyolefin membrane
 2. Manufactured with prime virgin resins
 3. Water Vapor Retarder: ASTM E 1745, meets or exceeds Class A
 4. Water Vapor Transmission Rate: ASTM E 96, 0.008 gr./ft²/hr. (0.086 gr./m²/hr) or lower
 5. Permeance Rating: ASTM E 96, 0.03 perms or lower for new material and after conditioning tests in accordance with applicable sections of ASTM E 154
 6. Puncture Resistance: ASTM E 1745, minimum 2200 grams
 7. Tensile Strength: ASTM E 1745, minimum 45.0 lbs./in (8.0 kg/cm).
 8. Acceptable products:
 - a) Floprufe 120 by GCP Applied Technologies, Inc.
 - b) Perminator by W. R. Meadows

- c) Stego Wrap by Stego Industry LLC
- d) Raven Vapor Block 15 by Raven Industries
- e) Husky Yellow Guard 15 Mil by Poly-America]

F. Non-Slip Aggregate:

- 1. Abrasive crushed and graded aggregate, high in aluminum oxide aggregate which is unaffected by moisture or cleaning compounds.
- 2. Acceptable Products:
 - a) Non-Slip Aggregate by Euclid Chemical Company
 - b) Emery Non-Slip by Dayton Superior
 - c) A-H Emery Emerundum by Anti-Hydro International, Inc.

2.8 CONCRETE REPAIR MATERIALS

A. Polymer-Modified Repair Mortar

- 1. The following patching mortars may be used when color match of the adjacent concrete is not required. Prior approval by the Design Professionals is required.
- 2. Acceptable Products-Horizontal Surfaces:
 - a) Tammspatch II or Tamms Thin Patch by Euclid Chemical Company
 - b) Sikatop 122 Plus by Sika Corporation
 - c) Meadow-Patch T1 or T2 or Meadow-Crete GPS by W. R. Meadows
 - d) Duracrete by Laticrete International, Inc.
- 3. Acceptable Products-Vertical and Overhead Surfaces:
 - a) MasterEmaco N400 by Master Builders Solutions
 - b) Verticoat, Verticoat Supreme or Dualtop Gel by Euclid Chemical Company
 - c) SikaTop 123 Plus by Sika Corporation
 - d) Meadow-Crete GPS by W. R. Meadows

B. Crack Repair:

- a) Euco Qwikstitch or Dural 50 LM by Euclid Chemical Company
- b) MasterSeal 630 by Master Builders Solutions
- c) T78 Methyl Methacrylate Crack Sealer by Transpo Industries, Inc.

C. High Strength Flowing Repair Concrete:

- 1. For forming and pouring large volume repairs, provide shrinkage compensated repair concrete with integral corrosion inhibitor.
- 2. Minimum compressive strength 8000 psi (56MPa) @ 28-days
- 3. Prior approval by the Design Professionals is required for cold weather applications
- 4. Acceptable Products:
 - a) Eucocrete by Euclid Chemical Company
 - b) MasterEmaco S 466 CI by Master Builders Solutions

- c) Meadow-Crete FNP by W. R. Meadows
- D. Epoxy Injection:
 - 1. ASTM C881
 - 2. Acceptable Products:
 - a) MasterInject 1380 by Master Builders Solutions
 - b) Dural Injection Gel by Euclid Chemical Company
 - c) Sikadur 35 LV LPL by Sika Corporation
 - d) Rezi-Weld LV State by W. R. Meadows
- E. Pressure-Injected Foam Resin:
 - 1. Acceptable Products:
 - a) De Neef Sealform PRe by GCP Applied Technologies
 - b) Crack-Pac Flex-H2O by Simpson Strong-Tie
 - c) SikaFix HH LV by Sika Corporation
- F. Semi Rigid Joint Filler:
 - 1. Acceptable Products:
 - a) MasterSeal CR 190 by Master Builders Solutions
 - b) Euco 700 or Qwikjoint UVR by Euclid Chemical Company
 - c) MM-80 by Metzger/McGuire
 - d) Rezi-Weld Flex by W. R. Meadows
- G. Methyl Methacrylate (MMA)
 - 1. Acceptable Products:
 - a) MasterSeal 630 by Master Builders Solutions
 - b) Transpo Industries, Inc. “T-78 Methyl Methacrylate Polymer Crack Healer/Sealer”
 - c) MMA #884 by Epoxy Systems
- H. Sealant:
 - 1. Silicone or Polyurethane Sealant (as selected based on project requirements such as loading, traffic, bond, coatings, etc.).
 - 2. Joint to be routed and cleaned per manufacturer’s written directions.
 - 3. Acceptable Products:
 - a) MasterSeal Sealants by Master Builders Solutions
 - b) Sikaflex-1C SL and Loadflex 524 EZ by Sika Corporation
 - c) Pourthane NS by W. R. Meadows
 - d) Eucolastic 1NS by Euclid Chemical Company

PART 3 - EXECUTION

3.1 TOLERANCES

- A. Work shall conform to all requirements of ACI 117 except as modified by more stringent requirements in the Project Specifications and/or Drawings.

3.2 PREPARATION

A. Subgrade:

1. Dampen subgrades not covered with membrane by sprinkling immediately before placing concrete.
 - a) Omit when subgrade is already damp.
2. Do not place on water-saturated subgrade unless placing can be done without damage to subgrade (surface is stable) and loading the subgrade does not drive free water to the surface.
3. Do not place concrete on frozen ground.

B. Forms:

1. Coordinate with Section 031000 Concrete Formwork.
2. Remove dirt, sawdust, nails and other foreign material from formed space.
3. Dampen wood forms by sprinkling immediately before placing.
4. Cool metal forms by sprinkling immediately before placing.

C. Concrete Accessories:

1. Coordinate with Section 031000 Concrete Formwork.

D. Dewatering:

1. Remove water from concrete formwork.
2. Divert any flowing water to sump and remove by pumping.
3. Refer to Division 1 for additional dewatering requirements.

E. Vapor Retarder Placement: See Division 7, Thermal and Moisture Protection.

1. Vapor retarder installation shall be in accordance with manufacturer's instructions and ASTM E 1643.
2. Place vapor retarder under slabs-on-grade in position with longest dimension parallel with direction of pour.
3. Joints: Lap 6" (150mm) minimum and seal with manufacturer's recommended mastic or pressure-sensitive tape.
4. Prevent damage to moisture barrier.
5. If moisture barrier is damaged, place a piece of moisture barrier over damaged area (6" (150mm) larger all around) and tape in place with type of tape recommended by moisture barrier manufacturer.
6. Seal laps and intersections of walls with compatible trowel mastic or pressure-sensitive sealing tape.

7. Seal around pipes and other penetrations with compatible trowel mastic.
8. The vapor barrier installation must be approved prior to concrete placement.

3.3 JOINTS IN CONCRETE

- A. Locate construction and contraction joints as indicated on Drawings and on approved joint location submittal.
 1. Do not use contraction joints in framed floors or composite slabs.
 2. Locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to Design Professionals.
 3. Coordinate location of construction and contraction joints with locations of joints in finish materials where they exist.
 - a) Construction and contraction joints in slabs or slab on grade with terrazzo finish must be reviewed and approved by the Design Professionals.
 4. Maximum joint spacing is as indicated on Drawings.
- B. Construction Joints:
 1. Construction joints shall be located within the central third of the span. Any concrete spilling over or through the bulkhead shall be removed at the completion of the pour. All surfaces of the concrete shall have reinforcing extending through the joint.
 2. Horizontal Joints: Horizontal construction joints other than those shown on the Drawings will not be permitted unless approved by the Architect.
 3. Joint Preparation: Forms shall be removed in time to permit roughening of construction joints of structural members by chipping and wire brushing to remove all loose and foreign material and roughen as indicated on the Drawings. The existing concrete at joints shall either be (a) dampened to the point that the surface is saturated, but all standing water has been removed, promptly followed by placement and vibration of fresh concrete, or (b) not required to be dampened, with one of the specified bonding compounds applied as appropriate for the joint condition, following manufacturer recommendations, with placement and vibration of fresh concrete to follow while the epoxy bonding agent is still tacky. Joints without epoxy bonding agent require fresh concrete with slump 7 inches (180mm) or greater at horizontal joints, and fresh concrete confined to maintain pressure against the joint at vertical joints. Where such conditions are not present, or where applying water to dampen the surface is impractical, use epoxy bonding agent suitable for dry surfaces
- C. Isolation Joints:
 1. Interrupt structural continuity resulting from bond, reinforcement or keyway at points of contact between slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls and other locations, as indicated.
- D. Contraction Joints in Floor Slabs-on-Grade:

1. Maximum slab area controlled by jointing is 400 square feet (35 square meters).
 2. Space joints at 36 times slab thickness unless a smaller spacing is indicated on the Drawings, located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays).
 3. Contraction joints can be provided by sawcuts, formed joints or appropriately detailed construction joints.
 4. Sawcuts shall be made as soon as possible after slab finishing as may be safely done without dislodging aggregate. The Soff-Cut saw shall be used to a depth of $\frac{1}{4}$ of slab thickness immediately after final finishing. Conventional saw shall be used as soon as possible after final finish without raveling to a depth as indicated on the Drawings.
 5. Where contraction joints coincide with construction joints, detail joint as indicated on Drawings.
- E. Joint Fillers: Coordinate with Section 032000 Concrete Reinforcement and Embedded Assemblies and Division 7 requirements.

3.4 MIXING

- A. Measurement of Materials: Conforming to ASTM C 94.
- B. Mixing: All concrete shall be ready-mixed conforming to ASTM C 94 except as follows:
1. Provide concrete materials, proportions and properties as herein specified in lieu of ASTM C 94.
 2. Water, beyond that required by the mix design, shall not be added at the Project site. Addition of water at the Project site shall be made only in the presence of the Testing Agency.
 3. Furnish delivery ticket with each load of concrete delivered to the site to the Contractor conforming to the requirements of ASTM C 94.
- C. High range water reducing agents (superplasticizer), if added at the batch plant, may be added again at the Project site.
1. If superplasticizers are added at the batch plant, the concrete mix design must account for the delivery time, workability, finishability, and setting time required on the jobsite for proper placing and finishing procedures.
 2. If the superplasticizer is redosed at the jobsite in air entrained concrete, air content must be checked after mixing.
- D. Discharge of the concrete shall be completed within 1-1/2 hours , after the introduction of the mixing water to the cement and aggregates or the introduction of the cement to the aggregates. If the 1-1/2 hour limit cannot be achieved due to project location or other project specific conditions, hydration control measures to extend the proper workability up to 4 hours maximum can be proposed for approval by the SER. The increased time period along with redosing of the high range water reducer and/or use of hydration controlling/workability retaining admixtures should be agreed upon at the pre-concrete conference.

3.5 CONCRETE PLACEMENT

A. Prior to Concrete Placement:

1. Mechanical vibrators are required and must be available for placing concrete.
2. Remove debris from space to be occupied with concrete.
3. Approved mix designs must be maintained on file in Contractor's Field Office.
4. Reinforcement and accessories shall be in proper locations, clean, free of loose scale, dirt or other foreign coatings that may reduce bond to concrete, and in accordance with Section 032000 and Drawings.
5. Do not place concrete having a slump outside of allowable slump range.
6. Place concrete before initial set has occurred, but in no event after it has been discharged from the mixer more than 30 minutes. All concrete shall be placed upon clean, damp surfaces, free from puddled water, or upon properly consolidated fills or upon Placement upon soft mud or dry earth is not permitted.
7. Unless adequate protection is provided, concrete shall not be placed during rain.
8. Rain water shall not be allowed to increase mixing water or to damage the surface finish.
9. At surfaces left exposed to view, do not use equipment in placing and finishing concrete that contain aluminum in the finishing edges that come in contact with the concrete surface.
10. Keep subgrade moisture uniform without puddles or dry areas.
11. Place vapor retarder directly below slabs on grade as specified in Contract Documents.

B. For Conduits and Pipes Embedded in Concrete:

1. For concrete slab, wall, beam or column, conform to requirements of ACI 318. For variations from these requirements, submit a written request for Design Professionals' review and response.
2. Conduits and pipes shall not be embedded in concrete slabs on steel deck without approval of Design Professional.
3. Provide sleeves for pipes passing vertically through concrete.
4. Do not embed aluminum materials.
5. Do not cut, bend or displace the reinforcement to facilitate placement of embedded pipes and conduits.

C. Pumping: Pumping shall be done in strict accordance with ACI 304.2R.

D. Placing Concrete in Forms:

1. Clean and prepare forms as specified in Section 031000/Concrete Formwork.
2. Place concrete continuously without interruption between predetermined construction and contraction joints in walls.
3. Deposit concrete in forms in horizontal layers no deeper than 24" (600mm) and in a manner to avoid inclined construction joints.
4. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
5. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping.

- a) Use equipment and procedures for consolidation of concrete in accordance with ACI 309R.
 6. Do not use vibrators to move fresh concrete laterally inside forms from discharge point; shift discharge point as needed.
 7. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine.
 8. Place vibrators to rapidly penetrate placed layer and at least 6" (150mm) into preceding layer.
 9. Do not insert vibrators into lower layers of concrete that have begun to set.
 10. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
 11. Do not vibrate Self-Consolidating Concrete (SCC).
- E. Placing Concrete Slabs:
1. Place concrete continuously without interruption between predetermined construction and contraction joints in floors.
 - a) Place slabs on grade by the long strip cast method. Refer to ACI 302.1R for recommended methods of placement.
 2. Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.
 3. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement, other embedded items and into corners.
 4. Bring slab surfaces to correct level with a straightedge and strike off.
 - a) Use highway straight edges, bullfloats or darbies to smooth surface free of humps or hollows.
 - b) Do not disturb slab surfaces prior to beginning finishing operations.
 5. Maintain reinforcing in proper position on chairs during concrete placement.
 6. Do not place materials on slabs or impose loads during period of setting.
- F. Placing Concrete at Construction Joints:
1. To secure full bond at construction joints, surfaces to receive concrete in a subsequent placement shall be left in a roughened state or intentionally roughened by raking while plastic or brushing and chipping immediately after removal.
 2. Before new concrete is placed in contact, surfaces of hardened concrete already placed shall be thoroughly cleaned of foreign materials and laitance.
 3. At hardened concrete at joints where no bonding agents are used, dampen concrete to achieve a saturated surface dry condition. Leave no standing water. Place and vibrate concrete (slump 7 inches (180mm) or greater) against horizontal joints. Place and vibrate flowing concrete (slump 8 to 10 inches (200 to 250mm)) while maintaining pressure against vertical joints by confinement.
 4. At hardened concrete with joints not meeting conditions required for no bonding agents, apply appropriate specified bonding agent for conditions present

including age and moisture per manufacturer's specifications. Place new concrete while the bonding agent is still tacky.

G. Cold-Weather Placement:

1. Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306R and as specified in this section.
2. When air temperature has fallen to or is expected to fall below 40°F (4°C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50°F (10°C), and not more than 80°F (27°C), at point of placement.
3. Do not use frozen materials or materials containing ice or snow.
 - a) Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
4. Remove frost, snow and ice from forms, reinforcement and other embedments immediately prior to concrete placement.
5. Use only the specified non-corrosive accelerating admixture previously approved as part of the cold weather mixture. Addition of calcium chloride, salt, thiocyanates or admixtures containing more than 0.05 percent chloride ions is not permitted.
6. Freeze Resistant Concrete per ASTM C1622 and Chapter 9 of ACI 212.3R may be used if approved by SER. The contractor shall prepare a plan for placing, finishing and curing procedures that assure the specified hardened properties are achieved.

H. Hot-Weather Placement:

1. Hot weather is defined as air temperature which exceeds 90°F (32°C) or any combination of high temperature, low humidity and/or high wind velocity which causes a rate of evaporation in excess of 0.2 pounds per square feet per hour (1.0 kg/m² per hour) as determined by ACI 305R.
2. When hot weather conditions exist that would impair quality and strength of concrete, place concrete in compliance with ACI 305R and as specified in this section.
3. Cool ingredients before mixing to maintain concrete temperature at time of placement below [95°F (35°C)].
4. Mixing water may be chilled, or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water.
5. Use of liquid nitrogen to cool concrete is Contractor's option.
6. Fog spray forms, reinforcement, and subgrade just before pouring concrete.
7. When concrete placement will occur late in the day and reinforcing steel will be heated by the sun, cover reinforcing steel with water-soaked burlap so that steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
8. When concrete operations must be performed in direct sun, wind, high temperatures, low relative humidity, or other adverse placing conditions, the specified evaporation retarder shall be applied one or more times during the finishing operation to prevent plastic cracking.

3.6 CONCRETE FINISHES

A. General:

1. Comply with recommendations for concrete finishing established by ACI 302.1R and ACI 304R.
2. Comply with dimensional tolerance limitations given by ACI 117.
3. For shored floor or slab on grade construction: Floor flatness/floor levelness tolerance compliance testing is to be performed prior to the removal of shores and forms but not later than [72] hours of concrete placement by Testing Agency.
4. See architectural Drawings for locations of the various finishes listed below.
5. Comply with the specified overall SOF_F and SOF_L values listed below:
 - a) The specified overall area shall be each individual floor.
 - b) F_F/F_L shall be measured in accordance with ASTM E 1155.
 - c) The specified minimum local values of MLF_F/MLF_L shall be 3/5 of the SOF_F/SOF_L values listed below.
 - d) If an individual test section measures less than either of the specified minimum local MLF_F/MLF_L numbers, that section may be rejected and remedial measures may be required as specified in CONCRETE SURFACE REPAIRS.
 - e) If the composite value of the test surface measures less than either of the specified overall SOF_F/SOF_L numbers, then the entire slab may be rejected and remedial measures may be required.
 - f) F_L numbers shall only apply to supported slabs if the tested with all of the original shoring in place, prior to shoring removal/reshoring.
 - g) F_L numbers shall not apply to unshored slabs or shored slabs with camber.

B. Finish for monolithic slab surfaces to receive concrete floor topping or mortar setting beds for tile and other bonded applied cementitious finish flooring material, as indicated on architectural Drawings:

1. Scratch Finish.
 - a) Finish surface to overall value of $SOF_F=20$ and $SOF_L=15$.
 - b) Slope surfaces uniformly to drains where required.
 - c) After leveling, roughen surface before final set with stiff brushes, brooms, or rakes.

C. Finish for monolithic slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, sand-bed terrazzo as indicated on architectural Drawings:

1. Float Finish.
 - a) After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating.
 - b) Begin floating, using float blades or float shoes only, when surface water has disappeared, or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both.

- c) Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units.
 - d) Finish surfaces to overall value of $SOF_F=20$ and $SOF_L=15$.
 - e) Cut down high spots and fill low spots.
 - f) Uniformly slope surfaces to drains.
 - g) Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
- D. Finishes for Pedestrian Sidewalks and Ramps, Exterior Platforms, Steps, as indicated on architectural Drawings:
 - 1. Sidewalks and Curbs: Light-to-medium broom finish applied with fiber-bristle broom perpendicular to direction of main traffic route immediately after float finishing.
 - 2. Ramps: Scored finish as applied perpendicular to direction of main traffic route immediately after float finishing.
 - 3. Finish surface to overall value of $SOF_F=20$ and $SOF_L=15$.
 - 4. Texture shall be approved by the Design Professionals from sample panels.
- E. Finish for interior floor slab surfaces exposed to view and slab surfaces to be covered with resilient flooring, carpet, paint or another thin film-finish coating system, as indicated on architectural Drawings:
 - 1. Trowel Finish.
 - a) After floating, begin first trowel-finish operation using a power-driven trowel.
 - b) Begin final troweling when surface produces a ringing sound as trowel is moved over surface.
 - c) The final hand-troweling operation shall result in a smooth surface, free of trowel marks, uniform in texture and appearance.
 - d) Grind smooth any surface defects that would telegraph through applied floor covering system.
 - 2. Finish surface to overall value of $SOF_F=25$ and $SOF_L=20$.
 - 3. Floor Slopes: Where drains occur, slope floor slabs uniformly to drains, maintaining scheduled slab thickness.
 - 4. Floor Edges at Expansion Joints: Tool edges minimum 3/8" (10mm).
 - 5. Defects: Remove defects of sufficient magnitude to show through floor covering by grinding.
 - 6. Floor Hardener: Use only where scheduled and in accordance with manufacturer's published instructions.
 - 7. Dry Cement: Shall not be used during finishing.
- F. Finishes Equipment and Housekeeping Pads
 - 1. Coordinate finish surface to meet equipment manufacturer requirements, if any, for flatness and levelness.
- G. Tolerances at Slab Discontinuities

1. Within 2 ft (600mm) of slab boundaries, construction joints, isolation joints, block-outs, penetrations or other similar discontinuities, where required for travel paths, installation of finishes and partitions, or any other requirements indicated in the Contract Documents, the following equivalent straightedge tolerances shall apply:
 - a) Specified local $MLF_F = 12$, use $\frac{1}{4}$ " (6mm) over 4 ft (1200mm), no offset greater than $\frac{1}{16}$ " (2mm)
 - b) Specified local $MLF_F = 15$, use $\frac{1}{8}$ " (3mm) over 4 ft (1200mm), no offset greater than $\frac{1}{32}$ " (0.8mm)

H. Dry Shake Finish:

1. Non-slip aggregate where indicated on Drawings.
2. Non-oxidizing metallic hardener on loading docks at a rate of 1.5 lbs. per sq. ft. (7.3 kg/m^2) and in other locations so noted on the Drawings.
3. Mineral aggregate hardener at a rate of 1.2 lbs. per sq. ft. (5.8 kg/m^2) where noted on the Drawings.
4. Final finish type, method and tolerance as applicable by location and use.
5. Dry shake finish will be applied only where scheduled and in accordance with the manufacturer's published instructions and the methods and procedures agreed upon at the pre-installation conference.

I. Rough Formed Finish:

1. Acceptable for formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated.
2. Concrete surface shall have texture imparted by form-facing material used, with tie holes and defective areas repaired and patched, and fins and other projections exceeding $\frac{1}{4}$ " (6mm) in height rubbed down or chipped off.

J. Architectural Concrete Finish:

1. Using self-consolidating concrete, provide smooth, uniform finish upon form removal with no patching, stoning or other form of repair except washing permitted unless otherwise noted for walls, columns and other surfaces exposed to view. The surface shall match the approved jobsite mock-up panel.

K. Smooth Formed Finish:

1. Required for formed concrete surfaces exposed to view, or scheduled to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or other similar system, as indicated on architectural Drawings:
2. Surface is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams.
3. Repair and patch tie holes and defects. Remove fins and other projections completely.

L. Smooth Rubbed Finish:

1. "Smooth Rubbed" finish shall consist of a finish free of fins, joint marks smoothed off, blemishes removed and surfaces left smooth and unmarred.
2. Provide smooth rubbed finish to scheduled concrete surfaces, as indicated on architectural Drawings, which have received smooth form finish treatment not later than one day after form removal.
3. Moisten concrete surfaces and rub with carborundum brick or other abrasive until a uniform color and texture is produced.
 - a) Do not apply cement grout other than that created by the rubbing process.

M. Grout-Cleaned Finish:

1. Provide grout-cleaned finish on scheduled concrete surfaces, as indicated on architectural Drawings, that have received smooth-formed finish treatment.
2. Combine one part Portland Cement to one and one-half parts fine sand by volume, and a 50:50 mixture of acrylic or styrene butadiene-based bonding admixture and water to form the consistency of thick paint.
3. Blend standard Portland Cement and white Portland Cement in amounts determined by trial patches so that final color of dry grout will match adjacent surfaces.
4. Thoroughly wet concrete surfaces, apply grout to coat surfaces, and fill small holes.
5. Remove excess grout by scraping and rubbing with clean burlap.
6. Keep surface damp by fog spray for at least 36 hours after rubbing.

N. Unformed Surfaces:

1. At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces.
2. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.7 CURING AND PROTECTION

A. Normal Conditions:

1. Protect concrete from premature drying, excessive hot or cold temperature, and damage.
2. Concrete shall be kept continuously moist and above 50°F (10°C) for seven days (ASTM C 150 Type I cement) or for 10 days (ASTM C 150 Type II cement). High early strength concrete usage shall be maintained over 50°F (10°C) for three days.
3. Concrete and concrete patching materials shall be cured according to manufacturers published recommendations.
4. Begin curing as soon as free water has disappeared from concrete surface and finishing has been completed.

5. Curing Methods: Cure concrete by curing compound, moist curing, moisture-retaining cover curing, or by combining these methods, as specified. Under extreme hot/dry or windy/dry conditions, moist curing and/or moisture-retaining cover curing should be used.
 - a) Curing compound is an acceptable form of curing if all of the following requirements are met:
 - i. Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). In accordance with all manufacturer's instructions.
 - ii. Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions.
 - iii. Recoat areas subjected to heavy rainfall within 3 hours after initial application.
 - iv. Maintain continuity of coating and repair damage during curing period.
 - v. Use curing and sealing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.
 - vi. Floors to receive covering shall be cleaned thoroughly using a power scrubber and industrial strength detergent. Hand-brooming and sweeping is not sufficient.
 - vii. Strippable curing compound may be used in lieu of a moist curing method when approved by the Design Professionals.
 - b) Provide moist curing by the following methods:
 - i. Keep concrete surface continuously wet by covering with water.
 - ii. Use continuous water-fog spray.
 - iii. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4" (100mm) lap over adjacent absorptive covers.
 - c) Provide moisture-retaining cover curing as follows:
 - i. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" (75mm) and sealed by waterproof tape or adhesive.
 - (1) Immediately repair any holes or tears during curing period using cover material and waterproof tape
6. Cure slabs on grade, concrete toppings, concrete pour strips, supported slabs, walls and columns, not subject to conditions of hot or cold weather concreting, in accordance with ACI 308.

7. Cure surfaces exposed to deicing salts, brackish water, etc., such as loading dock slabs, parking garage slabs and ramps in accordance with ACI 308 recommendations for moist curing.
 8. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by leaving forms in place for the full curing period (equivalent to moist curing).
 - a) If forms are removed prior to completion of full curing period, continue curing by methods specified above for Unformed Surfaces, as applicable.
- B. Cold-Weather Protection:
1. When concrete is placed under conditions of cold weather concreting (defined as a period when the mean daily temperature drops below 40°F (4°C) for more than 3 successive days), take additional precautions as specified in ACI 306R when placing, curing, monitoring and protecting the fresh concrete.
- C. Hot-Weather Protection:
1. When concrete is placed under conditions of hot weather concreting, provide extra protection of the concrete against excessive placement temperatures and excessive drying throughout the placing and curing operations with an evaporation retarder.
 - a) Apply according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.
 2. Hot weather curing is required if hot weather conditions occur within a 24-hour period after completion of concrete placement.
- D. Floor surfaces, wherever indicated by weather conditions, shall be sprinkled during the interval between finishing operation and the start of curing to positively ensure against the possibility of surface drying.

3.8 CONCRETE REPAIRS

- A. Perform patching and repairs in accordance with ACI 301.
- B. Contractor shall submit patching and repair methods and materials for review by Design Professionals.
- C. When complete, all patches and repairs shall match color and texture of adjoining surfaces.
- D. At surfaces that are exposed to view, prepare test areas at inconspicuous locations for review by Design Professionals to verify repair color and texture match before proceeding with repair.
- E. Apply all patching and repair materials in accordance with manufacturer's specifications.
- F. Repairing Cracks In Formed and Unformed Surfaces:

1. Contractor shall notify Design Professionals of all cracks wider than 0.02" (0.50mm) and all cracks wider than 0.01" (0.25mm) that occur in a group of at least three cracks within twelve inches (300mm), in concrete. If Design Professionals deem repairs necessary, Contractor shall be responsible for repairing all such cracks per Design Professionals recommendation at no expense to the Owner. Repairs will generally require one or more of the following: Epoxy Injection, Semi-Rigid Epoxy, Pressure Injected Foam Resin, Methyl Methacrylate and/or Sealant with joint routed and cleaned. See Concrete Repair Materials section of this Specification for acceptable products

G. Repairing Formed Surfaces

1. Immediately after stripping forms, patch all honeycombing, defective joints, voids, etc. before the concrete is thoroughly dry.
2. Remove all burrs, fins, and ridges before the concrete is thoroughly dry.
3. Remove stains from rust, grease and oils, from release agents, etc.
4. Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of the Design Professionals.
 - a) Surface defects, include color and texture irregularities, cracks as defined above, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - b) Chip away defective areas, honeycomb, rock pockets, voids over 1/4" (6mm) in any dimension and holes left by tie rods and bolts, down to solid concrete but in no case to a depth less than 1" (25mm) and saw-cut edges to prevent feather edging of fill material.
5. Repair concealed formed surfaces, where possible, containing defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
6. Clean out form tie holes and fill with dry pack mortar or precast cone plugs secured in place with bonding agent.
7. If honeycombing exposes reinforcement, chip to provide clear space at least 3/4" (20mm) wide all around steel to allow proper bond.

H. Repairing Unformed Surfaces:

1. High and Low areas in concrete surfaces which are in excess of specified tolerances shall be leveled or ground-smooth.
 - a) Correct high areas by grinding after concrete has cured at least 14 days.
 - b) Correct low areas by applying leveling material. Finish leveling material as specified in this section.
2. Repair surfaces containing defects that affect durability of concrete.
 - a) Surface defects include crazing, cracks as defined above, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.

3. Repair defective areas, except random cracks and single holes not exceeding 1" (25mm) in diameter, by cutting out and replacing with fresh concrete.
 - a) Remove defective areas with clean, square cuts and expose reinforcing steel with at least 3/4" (20mm) clearance all around.
- I. Filling In: Fill in holes and openings left in concrete for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place.

3.9 EVALUATION AND ACCEPTANCE OF CONCRETE

- A. In accordance with ACI 301, except where otherwise specified.
- B. If, at any time during construction, the concrete resulting from the approved mix design deviates from Specification requirements for any reason, such as lack of workability, or insufficient strength, the Contractor shall have his laboratory verify the deficiency and modify the mix design, until the specified concrete is obtained. Modified mix to be submitted for approval per Part 1 - SUBMITTALS.

3.10 CORRECTIVE MEASURES

- A. Conflicts: The Contractor shall be solely responsible for errors of detailing, fabrication, and placement of reinforcement steel; placement of inserts and other embedded items; and the structural adequacy of all formwork.
- B. Compensation for Additional Services: Should additional work by Design Professionals such as design, documentation, meetings and/or site visits be required which are necessitated by failure of the Contractor to perform the work in accordance with the Contract Documents either developing corrective actions or reviewing corrective actions developed by others, the Contractor is responsible for paying for additional work performed by the Design Professionals at their standard firm-wide billing rates plus out-of-pocket expenses incurred at cost + 10%. Additional costs for testing and inspection by the Owner shall also be compensated by the Contractor.

[Balance of page blank; see form on next page]

CONCRETE MIX DESIGN SUBMITTAL FORM

Project: _____
City: _____
General Contractor: _____
Concrete Contractor: _____
Concrete Strength: _____
Use/Location on Job: _____
Supplier's Mix Designation: _____

Design Mix Information (Please check one): *Refer to ACI 301 for requirements of data used to substantiate strength calculations.*

Field Experience (Based on
Standard Deviation Analysis): _____
Trial Mixture Test Data: _____

Design Characteristics:

Density: _____ Pcf (kg/m³)
Strength: _____ Psi (MPa) (28 day)
Air: _____ % (specified)

Materials:	Type/Source	Specific Gravity	Weight (lb)	Absolute Vol. (cu. ft.) (cu. m)
Cement:				
Fly ash:				
Slag (GGBFS)				
Microsilica:				
Coarse Aggregate:				
Fine Aggregate:				
Water:				
Air:				
Other:				
TOTAL:				27.0 cu. ft. (1.0 m ³)
Water/Cementitious Material Ratio (lbs. (kg) water / lbs. (kg) cementitious material) =				%

Admixtures:	Manufacturer	ASTM	Dosage (oz/cwt)
Water Reducer:			
Air Entraining Agent:			
High Range Water Reducer			
Non-corrosive Accelerator:			
Other:			

Slump before HRWR: _____ Inches (mm)

Slump after HRWR: _____ Inches (mm)

Standard Deviation Analysis (from experience records):

No. of Test Cylinders

Evaluated: _____

Standard Deviation: _____

Required Average Strength f'_{cr}

Average Strength by Tests

Equation Used (ACI Chapter 5)

(Refer to ACI 318 for increased deviation factor when less than 30 tests are available)

TRIAL MIXTURE TEST DATA

Compressive Strength:	Age (days)	Mix #1	Mix #2	Mix #3
	28 [56] [90]	psi (MPa)	psi (MPa)	psi (MPa)
	28 [56] [90]	psi (MPa)	psi (MPa)	psi (MPa)
	28 [56] [90]	psi (MPa)	psi (MPa)	psi (MPa)
	Average	psi (MPa)	psi (MPa)	psi (MPa)
<i>Required Average Strength f'_{cr}</i>				
<i>Average Strength by Tests</i>				
<i>Equation Used (ACI Chapter 5)</i>				

REQUIRED ATTACHMENTS

Please check

Coarse Aggregate Gradation Report	
Fine Aggregate Gradation Report	
Fly Ash (or other Supplementary Cementitious Material) Certification	
Concrete Compressive Strength Data or Trial Mixture Test Data	
Admixture Compatibility certification letters	
Chloride Ion Content Certification	
Alkali Aggregate Reactivity Certification	
Shrinkage Test Reports	

SUBMITTED BY:

Name:

Address:

Phone no.:

Main Plant Location:

Miles from Project:

Secondary Plant Location:

Miles from Project:

Date:

Certification by Concrete

Supplier:

Signature:

Print Name:

PE License Number
and Expiration Date
(print or stamp)

Structural Substitution Request Form – to be completed by Contractor

Project:		Substitution Request #
Date:		
Requesting Contractor:		Pages Attached (including this form)

1. Description of Requested Substitution:

2. Related Drawings and Specification Sections:

3. Rationale or Benefit Anticipated:

4. Effect on Construction Schedule¹ (check one): ☐ NONE ☐ See Attached

5. Effect on Owner's Cost² attach data (check one): ☐ CREDIT TO OWNER ☐ EXTRA

6. Effect on Construction Documents³ (design work anticipated): ☐ NONE ☐ See Attached

7. Requesting Contractor Agrees to Pay for Design Changes (check): ☐ YES ☐ NO ☐ NOT APPLICABLE

8. Effect on Other Trades⁴:

9. Effect of Substitution on Manufacturer's Warranty (check): ☐ NONE ☐ See Attachment
Signature⁵: Date:

Company:

General Contractor Signature⁵: Date:

Notes:

1. Contractor is responsible for means and methods and any problems that may arise from making the requested substitution.
2. This is NOT A CHANGE ORDER FORM. A separate form is required to adjust costs and/or schedules.
3. Contractor is responsible for any design impacts that may arise from this substitution, including redesign efforts.
4. Contractor is responsible for effects on other trades from this substitution;
General Contractor must review and agree effects on other trades are fairly represented in items 4-9.
5. Signature by a person having authority to legally bind his/her company to the above terms. Otherwise this request is void
6. All items in form must be completed for substitution request to be considered.

Request Review Responses (completed by Architect and/or Engineer(s)):

ACCEPTED	ACCEPTED AS NOTED	REJECTED	INSUFFICIENT DATA TO SUPPORT REQUEST	ENGINEER / ARCH / MEP SIGNATURE	DATE

Engineer/Architect Comments:

END OF SECTION

SECTION 040300 - RESTORATION TREATMENT AND CLEANING FOR HISTORIC MASONRY

PART 1 - GENERAL

1.1 DESCRIPTION

- A. John Jay Homestead is a National Historic Landmark, on the National Register of Historic Places and in the New York State Register of Historic Places.
- B. The historical and architectural significance of the site and its buildings require particular care when intervening with existing fabric to ensure restoration work and the construction of new interventions are of appropriate quality and undertaken with appropriate care for the historic fabric.
- C. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents, including but not limited to General and Supplementary Conditions and Division 01 Specifications Sections.

1.2 SECTION INCLUDES

- A. General:
 - 1. The Contractor shall provide all labor, materials, equipment and services required to complete the work as shown on drawings, as described in this section, and as may be required by conditions and authorities.
 - 2. Masonry Restoration Contractor to provide all cleaning, selective removals and dismantling of existing historic masonry elements included in this scope of work (e.g. cuts, perforations, trenching, etc.) as needed for installation of new devices, lighting, etc. by others. Provide all needed repairs at historic masonry elements after new installations are complete. Subject to review and acceptance by Client, Preservation Architect, and Construction Manager. General Contractor to coordinate the work of all relevant trades.
 - 3. Prior to starting the work - Contractor shall survey all areas where existing masonry is shown to remain, in order to verify extent and locations of cleaning and needed repairs, and confirm estimated quantities shown on the drawings. Results of the Contractor's survey shall be clearly communicated to Client, Architect and Construction Manager and form part of the Masonry Restoration Quality Control Plan.
- B. Section includes historic treatment work consisting of repairing historic stone (marble, granite and bluestone) and brick assemblies, including but not limited to:
 - 1. **(M-R1)** Removing existing paint coatings from select locations of masonry façade.
 - 2. Cleaning all exterior historic brick and stone masonry surfaces after paint coatings are removed from select areas, and cleaning of interior stone elements.
 - a. Masonry elements include but may not be limited to:
 - 1). Granite and brick masonry facades
 - 2). Brick chimney exteriors after paint coatings are removed

3. **(M-R9)** Cleaning interior stone elements of general soiling and cleaning/poulticing heavy or isolated staining.
 - a. Interior stone elements include but may not be limited to:
 - 1). Stone fireplace surrounds and hearths at interiors
4. After cleaning is complete – Contractor to survey of all areas where existing masonry is shown to remain to verify extent and locations of masonry repairs and confirm estimated quantities shown on the drawings. At painted areas, perform survey after paint coatings are removed and surface has been cleaned. Results of the Contractor's survey shall be clearly communicated to Client, Architect and Construction Manager and form part of the Masonry Restoration Quality Control Plan.
5. Repairing historic brick and stone masonry. Repairs include but may not be limited to:
 - a. **(M-R2)** Crack repair
 - b. **(M-R3)** Partial replacement (dutchman repair)
 - c. **(M-R4)** Full Stone Unit Replacement
 - d. **(M-R5)** Removing abandoned/unused anchors and providing patch or fill repairs at any remaining voids.
 - e. **(M-R6)** Repointing damaged or opened joints with custom mortar to match existing at each location. Repointing locations include but may not be limited to:
 - 1). Brick chimney exteriors
 - 2). Granite and brick masonry facades
 - 3). Brick masonry interiors
 - 4). Stone fireplace surrounds and hearths at interiors
 - f. **(M-R7)** Brick Replacement
 - g. **(M-R8)** Repainting masonry surface
6. Painting steel uncovered during the Work.
7. Repointing select joints with sealant. Surface of sealant to be sanded with sand to match color and texture of mortar joints at each area.

1.3 RELATED REQUIREMENTS

- A. Historical Treatment Procedures – Section 013591
- B. Removal and Salvage of Historic Construction Materials – Section 020342
- C. Restoration Treatments for Historic Metals – Section 050300
- D. Restoration Treatment for Historic Woodwork – Section 060312
- E. Restoration Treatment for Historic Plaster – Section 090120
- F. Painting and Finishing – Section 099000

1.4 DEFINITIONS

1. Aggregates: Sand component of mortar.

2. Biocide: Chemical treatment that inhibits, deters, or controls organic growth typically removed by cleaning following biocide treatment.
3. Binder: Component of mortar that binds aggregate particles into a cohesive material.
4. Dutchman: Repair method to partially remove deteriorated portion of stone and replace with salvaged or new stone to match existing.
5. In situ: Masonry units and mortar remain in place and are restored without removal.
6. Masonry: Brick or stone wall with mortar bedding and joints.
7. New Elements: New, nonhistoric materials added to masonry structures to aid in resistance to structural loads or water infiltration.
8. Patching: Use of substitute repair materials to treat damaged or deteriorated masonry units in situ.
9. Repointing: Removal of existing mortar joints to specified depth and replacement with mortar matching color, texture, and performance of original mortar, and with water vapor transmission, bond, hardness, and flexibility compatible with original mortar, tested in accordance with ASTM C1713.
10. Retooling: Chisel is used to recreate surrounding stone texture finish.
11. Very Low-Pressure Spray: Less than 100 psi (690 kPa).
12. Low-Pressure Spray: 100 to 400 psi (690 to 2750 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).
13. Medium-Pressure Spray: 400 to 500 psi (2750 to 5510 kPa); 4 to 6 gpm (0.25 to 0.4 L/s)..

1.5 REFERENCE STANDARDS

1. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2018.
2. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
3. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2018.
4. ASTM C503/C503M - Standard Specification for Marble Dimension Stone; 2022.
5. ASTM C615/C615M - Standard Specification for Granite Dimension Stone; 2018, with Editorial Revision.
6. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2020a.
7. ASTM C1713 - Standard Specification for Mortars for the Repair of Historic Masonry; 2023.
8. ASTM D905 - Standard Test Method for Strength Properties of Adhesive Bonds in Shear by Compression Loading; 2008 (Reapproved 2021).
9. National Park Service Preservation Brief #1. Assessing Cleaning and Water-Repellant Treatments for Historic Masonry Buildings. (2000)
10. National Park Service Preservation Brief #6: Dangers of Abrasive Cleaning to Historic Buildings. (1979).
11. National Park Service Preservation Brief #2. Repointing Mortar Joints in Historic Masonry Buildings (1998).

12. Brick Industry Association's Tech Note 20 Cleaning Brick.

1.6 QUALITY ASSURANCE

- A. Historic Treatment Specialist Qualifications: A firm or company specializing in historic masonry restoration with minimum ten (10) years of documented experience. Qualified companies must present examples of completed work on at least five (5) projects similar in material, design, and extent to that indicated for this Project, whose work has resulted in historic treatment of historic masonry with a record of successful in-service performance. A firm or individual experienced in installing and finishing new decorative masonry work is insufficient experience for historic masonry historic treatment work.
1. The Contractor shall hold and provide evidence of current RRP certification of Trained & Certified EPA Lead Renovator and previous experience in removal of lead-based paint from exterior and interior masonry surfaces.
 2. Field Supervision:
 - a. The Contractor shall maintain a full-time foreman/supervisor who shall be present on site or in the shop daily at all times that historic treatment of historic masonry is in progress.
 - b. The Contractor shall maintain a steady work crew consisting of skilled craftsmen who are experienced with the materials and methods specified and familiar with the design requirements.
 - 1). Masonry Cleaning and repairs shall be executed by skilled persons thoroughly trained and familiar with the methods required.
 - 2). The Contractor shall confirm that all workers under their direction fully understand the requirements of the job.
 - c. Contractor shall notify Architect before beginning work. Obtain the Architect's approval of the installation of restored masonry before proceeding with the work.
- B. Bidders must visit the site beforehand and make themselves thoroughly familiar with specific conditions relating to this Section.
- C. All painting and paint removal work shall be done by a Trained and Certified EPA Lead Renovator holding an active RRP Certification.
- D. Chemical Cleaner Manufacturer Qualifications: A firm regularly engaged in producing masonry cleaners tested-on and suitable-for historic brick and natural stone, that have been used for similar applications with successful results, and with factory-trained representatives who are available for consultation and project site inspection and assistance at no additional cost.
- E. Masonry Restoration Quality Control Plan: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of the historic treatment work, including protection of surrounding materials and Project site.
1. Description of dust containment methods.
 2. Description protection of surrounding construction and landscaping.

3. Annotated repair elevations showing confirmed locations and extent of repairs for Architect approval prior to starting any repair work.
 4. Description of sequencing, work procedures, materials, and tools proposed for each conservation treatment.
 - a. Include effects of weather variations on sequencing of treatments, construction schedule, and protection of completed work.
 5. Survey of original wall layout and datum points and plumb lines for rebuilding masonry.
 6. Description of shoring and providing safe working environment.
 7. Description of selection methods for deconstruction of individual masonry units and tools and methods for cleaning the masonry for reuse.
 8. Description of removal of deteriorated mortar joints.
 9. Description of proposed repair materials to match existing and a description of their compatibility with historic materials.
 10. Description of periodic and final cleaning of masonry surfaces.
 11. Description of masonry removal and matching procedures including, but not limited to, equipment, approach, length of time the masonry will be out of the wall, mapping removal locations, and location where masonry units will be repaired, on-site or off-site.
 12. Description of use of reclaimed masonry units including, but not limited to, setting masonry in its original position and maintaining original bond patterns and joint widths. Include methods for keeping exposed mortar damp during curing period.
 13. If materials and methods other than those indicated are proposed for any phase of historic treatment work, add to the quality-control program a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project.
- F. Pre-mockup Testing: Prior to providing mockups, the Historic Treatment Specialist shall perform small scale testing in the field to determine existing substrate, cleaning methods and refinishing methods on representative masonry elements of each type for compliance with specified requirements and as directed by Architect.
1. Locate test areas in an inconspicuous location or as directed by Architect.
 2. Size of test areas shall be approximately 6"x6" or as needed to demonstrate expected results from each product being tested.
 3. Notify Architect seven days in advance of the dates and times when testing will be performed.
 4. Provide proposed materials and methods for approval prior to testing. Requirements include but are not limited to:
 - a. At masonry areas to be repainted but existing coatings are to remain – provide small scale pre-mockup paint removal test samples to determine type(s) of coating(s) present. After existing coating(s) is/are confirmed, communicate findings to Architect and submit for review proposed new coatings developed by the manufacturer to be fully compatible with existing coating to remain. Provide proposed materials and methods for approval.

- b. At masonry areas where existing coatings are to be removed – provide pre-mockup test samples to determine the type of solvent or paint stripper that will be the gentlest effective method for removing the coating but least aggressive on the base masonry. Provide proposed materials and methods for approval.
 - c. At each area to be repointed – provide testing to determine existing type(s) of mortar present and provide a custom formula to match existing in type, color, texture, sand gradation, aggregate, etc.
 - d. At each type of masonry to be cleaned – identify type(s) of soiling and provide pre-mockup test samples to determine type(s) of gentlest effective cleaning methods. Contractor to Select sizes and configurations of existing work to adequately demonstrate capability of masonry cleaning. Provide proposed materials and methods for approval.
- G. Preconstruction Testing Service: Engage a qualified historic treatment specialist or one or more chemical-cleaner, coating-remover, and paint-remover manufacturers to perform preconstruction testing on historic masonry surfaces.
 - 1. Use test areas as indicated and representative of proposed materials and existing construction.
 - 2. Propose changes to materials and methods to suit Project.

1.7 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference on historic masonry cleaning, repair, and repointing at Project site prior to starting the work.
 - 1. Review methods and procedures related to cleaning, repairing, and repointing historic stone masonry, including, but not limited to, the following:
 - a. Historic treatment specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Materials, material application, sequencing, tolerances, and required clearances.
 - c. Conditions survey method and list of conditions to be surveyed.
 - d. Quality-control program.
 - e. Fire-protection plan.
 - f. Masonry Restoration Quality Control Plan (Include interior and exterior brick and stone)
 - g. Coordination with building occupants.

1.8 SEQUENCING AND SCHEDULING

- A. Order approved lime, sand and portland cement for colored mortar immediately after approval of mockups. Take delivery of and store at Project site a sufficient quantity to complete Project.
- B. As scaffolding is removed, patch anchor holes used to attach scaffolding.
- C. Work Sequence: Perform stone historic treatment work in the following sequence, which includes work specified in this and other Sections:
 - 1. Remove plant growth.

2. Remove paint from masonry where indicated. Existing paint will remain at some locations. Refer to Restoration Elevations for locations and extents of paint coatings to be removed.
3. Clean all exterior masonry surfaces.
 - a. Inspect masonry for open mortar joints.
 - b. Where repointing is required, delay further cleaning work until after repointing is completed, cured, and dried to prevent the intrusion of water and other cleaning materials into the wall..
4. After cleaning and paint removal is complete, Contractor to provide documentation confirming location and extent of needed repairs and confirm estimated quantities before starting any of the work.
5. Annotate repair elevations showing confirmed locations and extent of repairs for Architect approval prior to starting any repair work.
6. Rake out mortar from joints surrounding stone to be replaced and from joints adjacent to stone repairs along joints.
7. Repair masonry, including replacing existing masonry with new masonry materials to match existing. If required, repair backup masonry and/or steel components discovered during the work.
8. Rake out mortar from joints to be repointed. Only remove as much linear feet of mortar as can be repointed on the same day.
9. Point mortar and sealant joints.
10. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.

1.9 SUBMITTALS

A. General

1. Submit product data, repair, cleaning and repointing program for historic masonry, and field samples according to the Conditions of the Contract and Division 1 Specification Sections unless more stringent requirements are stated herein. Include test reports and certifications substantiating that products comply with specified requirements. Obtain approval from the Architect before materials are delivered to the site.
2. Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.
3. Architect shall review and approve all required submittals, including but not limited to product data and samples for the limited purpose of checking for conformance with the design concept and the information expressed in the Contract Documents.
 - a. Review of a specific item shall not indicate that Architect has reviewed the entire assembly of which the item is a component
 - b. Architect shall not be responsible for any deviations from the contract documents not brought to the Architect's attention in writing.
 - c. Architect shall not review partial submissions or submissions of which correlated items have not been received.

4. The contractor shall be responsible for coordination of work with other trades or construction, and safety precautions.
- B. Pre-Submittals:
1. Submit mortar recipe(s) based on the results of historic mortar analysis
- C. Informational Submittals:
1. Pre-mockup Test Results: For cleaning, identifying substrates and existing materials to remain prior to mockups - including but not limited to:
 - a. For paint removal materials and methods tested on site which have proved successful through preconstruction testing, and that the Contractor proposes for on site mockups.
 - b. For cleaning materials and methods tested on site which have proved successful through preconstruction testing, and that the Contractor proposes for on site mockups.
 - c. For repair materials and methods tested on site which have proved successful through preconstruction testing, and that the Contractor proposes for on site mockups.
 2. Qualification Data: For historic treatment specialist and testing service.
 3. RRP Certification of Trained & Certified EPA Lead Renovator.
- D. Action Submittals:
1. Product Data: For each type of product.
 - a. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - b. Include recommendations for product application and use.
 - c. Include test data substantiating that products comply with requirements. Product data sheets without proper indication of what it's being proposed for shall be unacceptable.
 2. Shop Drawings:
 - a. Include plans, elevations, sections, and locations of stone repair work on the structure.
 - b. Indicate complete dimensions for new stone units and their jointing, showing relation of existing to new units.
 - c. Show partial replacement stone units (dutchman repairs).
 - d. Indicate setting number of each new stone and terra cotta unit and its location on the structure in annotated plans and elevations.
 - e. Show full-size patterns with complete dimensions for new molded brick shapes and brick arches and their jointing, showing relationship of existing units to new units.
 - f. Show provisions for expansion joints or other sealant joints.
 - g. Show provisions for flashing, lighting fixtures, conduits, and weep holes as required.

- h. Show replacement and repair anchors, including drilled-in pins. Include details of anchors within individual stone units, with locations of anchors and dimensions of holes and recesses in stone required for anchors, including direction and angle of holes for pins.
 - i. Show locations of scaffolding and points of scaffolding in contact with masonry. Include details of each point of contact or anchorage.
3. Samples for Initial Selection: For the following:
- a. Patching Compound: Submit sets of patching compound Samples in the form of plugs (patches in drilled holes) in sample units of stone representative of the range of stone colors on the building.
Have each set contain a close color range of at least three Samples of different mixes of patching compound that matches the variations in existing stone when cured and dry.
 - b. Pointing Mortar: Submit sets of mortar for pointing in the form of sample mortar strips, 6 inches (150 mm) long by 1/4 inch (6 mm) wide, set in aluminum or plastic channels.
 - 1). Submit with precise measurements on ingredients, proportions, gradations, and sources of colored sands from which each Sample was made.
 - c. Sand Type Used for Pointing Mortar: Minimum 8 oz. (240 mL) of each in plastic screw-top jars.
 - 1). For blended sands, provide Samples of each component and blend. Identify blend ratio.
 - 2). Identify sources, both supplier and quarry, of each type of sand.
 - d. Sand Type Used for Pressing onto Sealant Surface: Minimum 8 oz. (240 mL) of each in plastic screw-top jars.
 - 1). For blended sands, provide Samples of each component and blend. Identify blend ratio.
 - 2). Identify sources, both supplier and quarry, of each type of sand.
 - e. Sealant materials.
 - f. Mineral Paint Coating materials.
 - g. Include similar Samples of accessories involving color selection.
4. Samples for Verification: For the following:
- a. Each type of replacement masonry unit (brick, stone and terra cotta) to be used for replacing existing units. Include sets of Samples to show full range of color, texture, grain, veining, and finish to be expected. Provide sets of at least two 12-by-12-inch (300-by-300-mm) Samples for each type, but no fewer than necessary to indicate full range and the proportion of variations within range.
 - 1). Refer to Section 040325 “Terra Cotta Fabrication” for more information about the requirements for terra cotta replacements.

- b. Each type of patching compound in form of briquettes, at least 3 inches (75 mm) long by 1-1/2 inches (38 mm) wide. Document each Sample with manufacturer and stock number or other information necessary to order additional material.
- c. Each type of adhesive.
- d. Each type, color, and texture of pointing mortar in the form of sample mortar strips, 6 inches (150 mm) long by 1/4 inch (6 mm) wide, set in aluminum or plastic channels.
 - 1). Include with each Sample a list of ingredients with proportions of each. Identify sources, both supplier and quarry, of each type of sand and brand names of cementitious materials and pigments if any.
- e. Sealant materials.
- f. Mineral Paint Coating materials.
- g. Accessories: Each type of anchor, accessory, and miscellaneous support.

1.10 MOCK-UPS

- A. Following pre-mockup testing, provide the following using approved options of materials and methods for mockups.
 - 1. **(M-R1) Paint Removal:** Remove existing paint coatings using gentlest effective method to provide a clean masonry surface.
 - a. At brick surfaces with existing paint to be removed:
 - 1). Provide mockups to find most effective and least aggressive product option. Allow for two (2) 2'-0" x 2'-0" mockups.
 - 2. **(M-R9 and for exterior masonry) Cleaning of existing masonry:** a [5]-foot ([1.5] m) by [3]-foot ([1] m) panel of wall of each type of period masonry.
 - a. Demonstrate cleaning of General Soiling and – at interiors only (M-R9) - cleaning of areas with Heavy or Isolated Staining.
 - b. Repeat, using different cleaning methods for up to three different panels.
 - 3. **Restore and repoint existing masonry wall** defined as follows and on drawings. Include mortar, accessories, wall openings, and flashings.
 - a. **(M-R6) Repointing Mortar Joints:**
 - 1). Minimum Dimensions: 6 feet (2 m) long; 2/3 of length for horizontal joints and 1/3 of length for vertical joints.
 - 2). Demonstrate cutting out mortar joints, preparation for repointing, and mixing, installing, and curing mortar.
 - b. **(M-R4 & M-R7) Masonry Removal and Replacement:** Remove masonry and replace to match existing dimensions and texture, unless indicated otherwise. Size shall represent typical conditions.
 - 1). Set one masonry unit in same location; match joint width and bond pattern, using mortar specified.

- 2). Confirm with Architect that replacement masonry units meet specified requirements, and that quantity required for the work has been identified.
- c. Application of Repair Materials:
 - 1). **(M-R5) Patching:** Apply repair material on minimum two masonry units of type scheduled for repair.
 - (a). Demonstrate removal of previous patching and application of new patching on one masonry unit.
 - (b). Remove metal anchors at two locations and fill in the holes with repair material on minimum one masonry unit.
 - 2). **(M-R3) Dutchman:** Provide dutchman repairs in two locations, include one that is only cut and prepared for application. Demonstrate qualities of stone insert and workmanship and techniques in dutchman repairs. Do not proceed with other dutchman repairs until repair has been approved by Architect.
 - 3). **(M-R2) Crack Repair:** Repair one crack, 24 inches (610 mm) long, for each indicated method.
 - (a). Repair by pinning with Type 304 stainless steel threaded rod.
 - (b). Repair with injection grout using appropriate repair material.
4. **(M-R8) Application of new paint coating** over existing masonry after cleaning and repairs are complete.
 - a. Provide one (1) 4-foot by 2-foot panel of wall of each color to be reviewed at each type of period masonry.
5. Cleaning Mockup: Demonstrate materials and methods to be used for cleaning each type of masonry surface and condition on sample panels of approximately 25 sq. ft. in area
 - a. Test adjacent non-masonry materials for possible reaction with cleaning materials.
 - b. Allow waiting period not less than seven (7) calendar days, after completion of sample cleaning to permit study of sample panels for negative reactions.
 - c. Allow for sufficient dwell time and number of dwells to clean masonry.
6. Locate all mock-up areas where directed or in most soiled area.
7. Approved restoration mock-up areas, including results of procedures employed, will remain and become the quality standard for work of this section.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. Verify the availability and/or limitations of on-site storage. Coordinate delivery schedule with the Owner.
- B. All materials shall be delivered to the job site in factory-sealed containers clearly labeled as to product, manufacturer, and other pertinent characteristics.
- C. All materials for use in this Section shall be stored under the environmental conditions recommended by the manufacturer.

- D. Protect masonry cleaning products during storage and construction from rain, snow, and ground water, and from staining and mixing with soil and other material. Keep containers tightly closed and away from open flames. Protect liquid components from freezing.
- E. The Owner shall not be responsible for damaged or stolen materials or for equipment left on the building premises by the Contractor.
- F. Deliver masonry neatly stacked and tied on pallets. Store clear of ground with adequate waterproof covering.

1.12 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit repair work to be performed according to product manufacturers' written instructions and specified requirements.
- B. Temperature Limits: Repair stonework only when air temperature is between 40 and 90 deg F (4 and 32 deg C) and is predicted to remain so for at least seven days after completion of the Work unless otherwise indicated.
- C. Hot-Weather Requirements: Protect stonework repairs when temperature and humidity conditions produce excessive evaporation of water from mortar and patching materials. Provide artificial shade and wind breaks, and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F (32 deg C) and above unless otherwise indicated.
- D. Cold-Weather Requirements: Comply with the following procedures for mortar-joint pointing unless otherwise indicated:
 - 1. When air temperature is below 40 deg F (4 deg C), heat mortar ingredients and existing masonry walls to produce temperatures between 40 and 120 deg F (4 and 49 deg C).
 - 2. When mean daily air temperature is below 40 deg F (4 deg C), provide enclosure and heat to maintain temperatures above 32 deg F (0 deg C) within the enclosure for seven days after pointing.
- E. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.

PART 2 – PRODUCTS

2.1 CLEANING MATERIALS

- A. Cleaning Agent: Detergent type designed for use on natural stone and low-fired brick. Recommended products for Pre-mockup Testing include, but may not be limited to:
 - 1. Limeworks USA <https://www.limeworks.us/product-category/masonry-cleaners/>
 - 2. Prosoco Enviro Klean 2010 All Surface Cleaner: www.prosoco.com
 - 3. Chemique Artisan Architectural Restorer: www.chemique.com
 - 4. Prosoco Enviro Klean ReKlaim: www.prosoco.com

5. Or approved equal.

B. Poultice Materials: Commercially available or custom-prepared materials that adhere to and peel off paint or other coatings without damaging underlying masonry. Recommended products for Pre-mockup Testing include, but may not be limited to:

1. Clay-base Type:

a. Prosoco Sure Klean Marble Poultice with Prosoco Sure Klean Poultice Additive mixed in per Manufacturer's Recommendations: www.prosoco.com

b. Or approved equal.

2. Waterless Type: Proprietary latex-based coating, direct-applied without on-site mixing.

a. Cathedral Stone, Inc. Latex-Based Cleaner: www.cathedralstone.com

b. Or approved equal.

3. Water-Based Type: Proprietary, odorless, nonacidic blend of dry absorbent natural or artificial clays and biodegradable detergents, mixed on-site with potable water.

a. Prosoco Sure Klean 1260 Limestone & Marble Poultice: www.prosoco.com

b. Or approved equal.

2.2 MORTAR MATERIALS

A. Hydrated Lime: ASTM C207, Type S.

B. Portland Cement: ASTM C150/C150M, Type I; color required to match approved color sample.

C. Sand: ASTM C144.

D. Mortar Mixing:

1. General Requirements:

a. Do not use modern additives unless permitted in writing by Architect.

b. Match the historic mortar in color, texture, and tooling.

2. Mortar for Brick: Custom mortar to match existing color, texture, grain size, tooling, etc. Contractor to provide test results following Pre-mockup Testing.

3. Mortar for Stone: Custom mortar to match existing in color, texture, grain size, tooling, etc. Contractor to provide test results following Pre-mockup Testing.

2.3 MASONRY UNIT MATERIALS

A. Replacement Facing Brick: Match existing historic brick color, shape, size, texture, and general appearance.

1. Special shapes: Molded units as required, unless standard units can be sawn to produce equivalent effect.

B. Replacement Stone: Match existing historic stone elements' grade, type, color, shape, size, texture, finish profile, and general appearance.

1. Marble: To match existing; complying with ASTM C503/C503M, Classification I - Calcite.
2. Granite: To match existing variety; complying with ASTM C615/C615M.

2.4 STONE PATCHING MATERIALS

- A. Fine-Grained Stone: Products and materials designed for mixing with stone aggregate for patching fine-grained natural stone, including granite, marble, and honed-finish limestone.
- B. Patching Compound: Vapor-permeable, two-component, exterior grade, clear, tintable knife-grade gel.
 1. Manufacturers:
 - a. Limeworks USA Brick and Stone Surface Repair Materials,.
<https://www.limeworks.us/product-category/brick-and-stone-patching-mortar/>
 - b. Cathedral Stone Products, Inc; Jahn M120 for Marble and M160 for Granite:
www.cathedralstone.com/#sle.
 - c. Or approved equal.
 2. Cured Properties:
 - a. Cohesive Tensile Strength: 313 psi (2.16 MPa) minimum, tested in accordance with ASTM D638.
 - b. Cohesive Compressive Strength: 313 psi (2.16 MPa) minimum, tested in accordance with ASTM D695.
 - c. Adhesive Shear Strength: 313 psi (2.16 MPa) minimum, tested in accordance with ASTM D905.
 - d. Cohesive Tensile Elongation At Break: 14.9 percent minimum, tested in accordance with ASTM D638.

2.5 MANUFACTURED REPAIR MATERIALS

- A. Cementitious Crack Filler: Ultrafine superplasticized grout that can be injected into cracks, is suitable for application to wet or dry cracks, exhibits low shrinkage, and develops high bond strength to all stone types.
 1. Subject to compliance with requirements, provide the following:
 - a. Crack Fill:
 - 1). VoidSpan 400 Seires PHLC70
 - 2). Or approved equal.
 - b. Injection Grout:
 - 1). VoidSpan 600 Series PHLC70
 - 2). Or approved equal.
- B. Vapor-permeable paint coating with a perm rating of at least 70 perms, formulated with potassium silicate binders and inorganic mineral pigments for use on porous, aged brick and

natural stone, and suitable for application over previous acrylic or latex painted surfaces. Coating must be suitable for exterior applications.

1. Soldalit Sol-silicate All Surface Mineral Finish, as manufactured by Keim Mineral Coatings of America, Inc., Charlotte, NC.
 2. Ecologic Potassium Silicate Paint Custom as manufactured by Limeworks USA.
<https://www.limeworks.us/product-category/brick-and-stone-patching-mortar/>
 3. Potassium Silicate Coating Masonry Mineral Paints & Stains, as manufactured by Cathedral Stone Products Inc.
<https://www.cathedralstone.com/IMS/Shop/Products/potassium-silicate-coating>.
 4. Or approved equal.
- C. Silicone Joint Sealants: Single-component, nonsag, plus 50 percent movement capability, nontraffic-use, neutral-curing elastomeric joint sealant, custom colors to be selected by Architect. Provide Dowsil 756 SMS Building Sealant by The Dow Chemical Company, Midland, MI. or approved equal.
1. Colors: Provide colors of exposed sealants to match color of mortar adjoining installed sealant unless otherwise indicated.
 2. Sand / Small Aggregate for texture-finished sealant joints: Color, grain size and texture to match newly repointed mortar joints. Sand type, grade, sieve size and percent passing as selected by Architect after successful mockups are completed.
- D. Joint Sealant Backing: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
1. Cylindrical Sealant Backings: ASTM C1330, Type O (open-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 - a. Open Cell Type O Backer Rod by C.R. Laurence Co., Inc., Los Angeles, CA.
 - b. Or approved equal.

2.6 BONDING ADHESIVES

- A. General: Products designed specifically for repairing and bonding masonry.
- B. Epoxy Anchor Grout: 100 percent solids, moisture-insensitive, low-creep structural adhesive complying with ASTM C881/C881M, Type IV; grade and class selected to comply with manufacturer's recommendations for the application.
- C. Epoxy Adhesive: Two-component, exterior grade, clear, tintable adhesive with gel viscosity.
1. Cured Properties:
 - a. Tensile Strength: 2,044 psi (14.09 MPa) minimum at 7 days, tested in accordance with ASTM D638.
 - b. Compressive Strength: 8,182 psi (56.41 MPa) minimum at 7 days, tested in accordance with ASTM D695.

- c. Flexural Strength: 9,896 psi (68.23 MPa) minimum at 7 days, tested in accordance with ASTM D790.

2.7 PAINT REMOVERS

- A. Paste-based: Recommended products for Pre-mockup Testing include, but may not be limited to:
 - 1. Dumond Chemicals, Inc; Peel Away 1: www.dumondchemicals.com
 - 2. Dumond Chemicals, Inc.; Smart Strip Pro: www.dumondchemicals.com
 - 3. PROSOCO, Inc; Enviro Klean SafStrip: www.prosoco.com
 - 4. Or approved equal.
- B. Water-Based: **Only for areas where paste-based paint removers are not successful.** Formulated without methylene chloride or methanol and used for removal of multiple coats of oil-based, water-based, acrylic-based, epoxy-based, urethane-based, elastomeric, and lead-based paints. Recommended products for Pre-mockup Testing include, but may not be limited to:
 - 1. Prosoco Sure Klean Fast Acting Stripper: www.prosoco.com
 - 2. Or approved equal.
- C. General:
 - 1. Formulation: Thixotropic paste or gel.
 - 2. Acidic Type: 2.1 pH.
 - 3. Surface Neutralization After Use: Not required.
 - 4. Restrictions: Not intended by the manufacturer for use on furniture, polished surfaces, or for removal of cementitious coatings.

2.8 ACCESSORY MATERIALS

- A. Masonry Anchors and Pins: Type and size indicated or, if not indicated, to match existing anchors in size and type. Fabricate from Type 304 stainless steel.
- B. Masonry Repair Anchors, Expansion Type: Mechanical fasteners designed for masonry veneer stabilization consisting of ¼-inch(6-mm) diameter, Type 304 stainless-steel rod with brass expanding shells at each end and water-shedding washer in the middle. Expanding shells shall be designed to provide positive mechanical anchorage to veneer on one end and backup masonry on the other.
- C. Masonry Repair Anchors, Spiral Type: Driven-in, Type 304 stainless-steel spiral rods designed to be installed in drilled holes and relying on screw effect rather than adhesive to secure them to backup and veneer. Anchors are flexible in plane of veneer but rigid perpendicular to it.
- D. Setting Buttons and Shims: Resilient plastic, nonstaining to stone, sized to suit joint thicknesses and bed depths of stone units, less the required depth of pointing materials unless removed before pointing.
- E. Masking Tape: Nonstaining, nonabsorbent material; compatible with mortar, joint primers, sealants, and surfaces adjacent to joints; and that easily comes off entirely, including adhesive.

- F. Antirust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer according to MPI #23 (surface-tolerant, anticorrosive metal primer or SSPC-Paint 20 or SSPC-Paint 29 zinc-rich coating).
1. Surface Preparation: Use coating requiring no better than SSPC-SP 3, "Power Tool Cleaning," surface preparation according to manufacturer's literature or certified statement.
 2. Limit in "VOC Limit" Subparagraph below is the EPA limit for rust-preventive architectural coatings.
 3. VOC Limit: Use coating with a VOC content of 400 (3.3) g/L (lb/gal.) or less.
 4. Recommended products:
 - a. Tnemec Chembuild Series 135
 - b. Or approved equal.
- G. Primer: Only if required, material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrate indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
1. Basis of Design Product: Dowsil 1200 OS Primer by C.R. Laurence Co., Inc., Los Angeles, CA.
 2. Or approved equal.
- H. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- I. Other Products: Select materials and methods of use based on the following, subject to approval of a mockup:
1. Previous effectiveness in performing work involved.
 2. Minimal possibility of damaging exposed surfaces.
 3. Consistency of each application.
 4. Uniformity of the resulting overall appearance.
 5. Do not use products or tools that could do the following:
 - a. Remove, alter, or harm the present condition or future preservation of existing surfaces, including surrounding surfaces not in contract.
 - b. Leave residue on surfaces.
- J. Colorants, When Required for Exact Color Match: Nonfading, mineral oxide masonry pigment as approved by the Architect.
1. Pigments: Maximum 10 percent by weight of binder in the mix.
- K. Lead Covers for Sealant Joints: T-shaped lead profile for embedment into freshly-applied joint sealant.
1. Manufacturers:

- a. Weathercap, Inc; Type A and/or Type B: www.weathercap.net/#sle.
- b. Or approved equal.

PART 3 - EXECUTION

3.1 FAÇADE CLEANING, GENERAL

- A. Cleaning Appearance Standard: Cleaned surfaces are to have a uniform appearance as viewed from 20 feet (6 m) away by Architect.
- B. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other. Ensure that dirty residues and rinse water do not wash over dry, cleaned surfaces.
- C. Use only those cleaning methods indicated for each masonry material and location.
- D. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces.

Bottom-to-top rinsing helps ensure thorough and uniform rinse; rinse water leaving bottom of wall while top is being rinsed will be clear only if entire wall is thoroughly rinsed. Entire wall will be wet when rinsing is completed, resulting in more uniform drying and less streaking.

- E. Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaffold setting.
- F. After cleaning is complete, remove protection no longer required. Remove tape and adhesive marks. Dispose of runoff from cleaning operations by legal means according to all applicable Federal, State and Local regulations. Prevent undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

3.2 PERIOD TREATMENT, GENERAL

- A. See Sections 013591 and 020342 for special procedure requirements related to elements and features of historical significance and value.

3.3 EXAMINATION

- A. Verify that surfaces to be cleaned and restored are ready for work of this section.

3.4 EVALUATION AND ASSESSMENT

- A. Begin masonry work after evaluation and analysis of areas to be repaired are completed including, but not limited to, sampling and testing of the existing mortar to determine its composition and qualities.
- B. Do not start repairs until conditions causing masonry deterioration have been identified.

3.5 PAINT REMOVAL

- A. All painting and paint removal work shall be done by a Trained and Certified EPA Lead Renovator holding an active RRP Certification.
- B. Prior to starting any repair work at masonry, remove all existing paint coatings from masonry facade.
 - 1. Provide and maintain adequate protection to all surrounding materials before starting the work. Follow all Manufacturer's recommendations.
 - 2. Strip all masonry components using approved paint stripper and following all EPA, OSHA and other applicable regulations.
 - 3. Leave surfaces in clean, residue-free condition, ready for subsequent restoration procedures.

3.6 ABANDONED ANCHOR REMOVAL

- A. Remove abandoned anchors, brackets, wood nailers, and other extraneous items no longer in use unless indicated to remain.
 - 1. Remove items carefully to avoid spalling or cracking stone.
 - 2. Notify Architect before proceeding if an item cannot be removed without damaging surrounding stone; do the following where directed:
 - a. Cut or grind off item approximately 3/4 inch (20 mm) beneath surface, and core drill a recess of same depth in surrounding stone as close around item as practical.
 - b. Immediately paint exposed end of item with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended dry film thickness per coat. Keep paint off sides of recess.
 - 3. Patch the hole using approved patching material where each item was removed unless directed to remove and replace the full masonry unit.

3.7 STONE REMOVAL AND REPLACEMENT

- A. At locations indicated, remove stone that has deteriorated or is damaged beyond repair. Carefully remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.
- B. Support and protect remaining masonry that was supported by removed stone.
- C. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition. Coordinate with new flashing, reinforcement, and lintels, which are specified in other Sections.
- D. Notify Architect of unforeseen detrimental conditions, including voids, cracks, bulges, loose masonry units in existing stone or unit masonry backup, rotted wood, rusted metal, and other deteriorated items.
- E. Remove in an undamaged condition as many whole stone units as possible.
 - 1. Remove mortar, loose particles, and soil from stone by cleaning with hand chisels, brushes, and water.

2. Remove sealants by cutting close to stone with utility knife and cleaning with solvents.
 3. Store stone for reuse or for source of dutchman repair pieces. Store off ground, on skids, and protected from weather.
 4. Deliver cleaned stone not required for reuse to Owner unless otherwise indicated.
- F. Clean masonry surrounding removal areas by removing mortar, dust, and loose particles in preparation for stone replacement.
- G. Retain first option in first paragraph below if salvaged stone is available; retain second option if new stone is acceptable.
- H. Replace removed damaged stone with new stone matching existing stone. Do not use broken units unless they can be cut to usable size.
- I. Retain "Rift" Paragraph below for stone having bedding planes, usually sedimentary stone such as limestone and sandstone. Retain option if there are arches; revise if bedding planes are used ornamentally or with fleuri cut.
- J. Rift: Do not allow face bedding of stone. Before setting, inspect to verify that each stone has been cut so that, when it is set in final position, the rift or natural bedding planes are predominantly horizontal, except for arches, where bedding planes are predominantly radial or vertical, but perpendicular to the wall. Reject stone with vertical bedding planes, except as required for arches, lintels, and copings.
- K. Install replacement stone into bonding and coursing pattern of existing stone. If cutting is required, use a motor-driven saw designed to cut stone with clean, sharp, unchipped edges. Finish edges to blend with appearance of edges of existing stone.
1. Maintain joint width for replacement stone to match existing joints.
 2. Use setting buttons or shims to set stone accurately spaced with uniform joints.
- L. Set replacement stone with rebuilding (setting) mortar and with completely filled bed, head, and collar joints. Butter vertical joints for full width before setting, and set units in full bed of mortar unless otherwise indicated. Replace existing anchors with new anchors matching existing configuration.
1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing stonework.
 2. Rake out mortar used for laying stone before mortar sets according to Section 040343 "Historic Stone Masonry Repointing." Point at same time as repointing of surrounding area.
 3. When mortar is hard enough to support units, remove shims and other devices interfering with pointing of joints.
- M. Curing: Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.
1. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

3.8 BRICK REMOVAL AND REPLACEMENT

- A. At locations indicated, remove bricks that are damaged, spalled, or deteriorated. Carefully remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.
 - 1. When removing single bricks, remove material from center of brick and work toward outside edges.
- B. Support and protect remaining masonry that surrounds removal area.
- C. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition. Coordinate with new flashing, reinforcement, and lintels, which are specified in other Sections.
- D. Notify Architect of unforeseen detrimental conditions, including voids, cracks, bulges, loose masonry units in existing backup, rotted wood, rusted metal, and other deteriorated items.
- E. Remove in an undamaged condition as many whole bricks as possible.
 - 1. Remove mortar, loose particles, and soil from brick by cleaning with hand chisels, brushes, and water.
 - 2. Remove sealants by cutting close to brick with utility knife and cleaning with solvents.
 - 3. Deliver cleaned brick not required for reuse to Owner unless otherwise indicated.
- F. Clean masonry surrounding removal areas by removing mortar, dust, and loose particles in preparation for brick replacement.
- G. Install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.
 - 1. Maintain joint width for replacement units to match existing joints.
 - 2. Use setting buttons or shims to set units accurately spaced with uniform joints.
- H. Lay replacement brick with rebuilding (setting) mortar and with completely filled bed, head, and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place. Wet both replacement and surrounding bricks that have ASTM C67 initial rates of absorption (suction) of more than 30 g/30 sq. in. per min. (30 g/194 sq. cm per min.). Use wetting methods that ensure that units are nearly saturated but surface is dry when laid.
 - 1. Retain one of first two subparagraphs below. Coordinate with mortar mixes in Part 2. First paragraph assumes that laying, setting, and repointing are done at same time; second assumes that joints are repointed separately.
 - 2. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.
 - 3. Rake out mortar used for laying brick before mortar sets according to Section 040323 "Historic Brick Unit Masonry Repointing." Point at same time as repointing of surrounding area.
 - 4. When mortar is hard enough to support units, remove shims and other devices interfering with pointing of joints.

- I. Curing: Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.
- J. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

3.9 BACKUP MASONRY REMOVAL AND REPLACEMENT (REFER TO STRUCTURAL ENGINEER'S DOCUMENTS)

- A. Where backup masonry is fractured or unstable and at locations indicated, remove mortar and masonry units that are broken or deteriorated, and rebuild with whole, new brick or whole, salvaged backup masonry units. Carefully remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.
- B. Support and protect remaining masonry that surrounds removal area.
- C. Maintain flashing, reinforcement, anchors, lintels, and adjoining construction in an undamaged condition. Coordinate with new flashing, reinforcement, and lintels, which are specified in other Sections.
- D. Notify Architect of unforeseen detrimental conditions, including voids, cracks, bulges, loose masonry units beyond the removal area, rotted wood, rusted metal, and other deteriorated items.
- E. Remove in an undamaged condition as many whole bricks as possible.
 - 1. Remove mortar, loose particles, and soil from brick by cleaning with hand chisels, brushes, and water.
 - 2. Remove sealants by cutting close to brick with utility knife and cleaning with solvents.
 - 3. Deliver cleaned brick not required for reuse to Owner unless otherwise indicated.
- F. Clean masonry surrounding removal areas by removing mortar, dust, and loose particles in preparation for brick replacement.
- G. Replace removed damaged brick with salvaged backup brick in good condition, where possible, or with new building brick matching existing backup brick. Do not use broken units unless they can be cut to usable size.
- H. Install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.
- I. Lay replacement brick with rebuilding (setting) mortar and with completely filled bed, head, and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place. Wet both replacement and surrounding bricks that have ASTM C67 initial rates of absorption (suction) of more than 30 g/30 sq. in. per min. (30 g/194 sq. cm per min.). Use wetting methods that ensure that units are nearly saturated, but surface is dry when laid.
- J. Curing: Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.
 - 1. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

3.10 PAINTING STEEL UNCOVERED DURING THE WORK

- A. Notify Architect if steel is exposed during masonry removal. Where Architect determines that it is structural, or for other reasons cannot be totally removed, prepare and paint steel as follows:
 - 1. Surface Preparation: Remove paint, rust, and other contaminants according to SSPC-SP 3, "Power Tool Cleaning," as applicable to comply with paint manufacturer's recommended preparation.
 - 2. Antirust Coating: Immediately paint exposed steel with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended rate of application (dry film thickness per coat).
- B. If on inspection and rust removal, the thickness of a steel member is found to be reduced from rust by more than 1/16 inch (1.6 mm), notify Architect before proceeding.

3.11 DUTCHMAN REPAIR / PARTIAL STONE REPLACEMENT

- A. Remove defective portion of existing stone unit. Carefully remove defective portion of stone by making vertical and horizontal saw cuts at face of backing stone and removing defective material to depth required for fitting partial replacement (dutchman).
 - 1. Make edges of backing stone at cuts smooth and square to each other and to finished surface; essentially rectangular. Make back of removal area flat and parallel to stone face.
 - 2. Do not overcut at corners and intersections. Hand trim to produce clean sharp corners with no rounding and no damage to existing work to remain.
 - 3. If backing stone becomes further damaged, remove damaged area and enlarge partial replacement as required.
- B. Remove mortar from joints that abut area of stone removal to same depth as stone was removed. Remove loose mortar particles and other debris from surfaces to be bonded and surfaces of adjacent stone units that will receive mortar by cleaning with stiff-fiber brush.
- C. Cut and trim partial replacement to accurately fit area where material was removed from backing stone. Fabricate to size required to produce joints between partial replacement and backing stone of no more than 1/16 inch (1.6 mm) in width, and to produce joints between partial replacement and other stones that match existing joints between stones. Cut partial replacement so that, when it is set in final position, natural bedding planes match the orientation of bedding planes of the backing stone unless otherwise indicated.
- D. Concealed Pinning: Before applying adhesive, prepare for concealed mechanical anchorage consisting of 1/4-inch (6-mm) diameter, threaded stainless-steel pins set into 1/4-inch (6-mm) diameter holes drilled into backing stone and into, but not through, the partial replacement.
 - 1. Center and space pins between 3 and 5 inches (75 and 125 mm) apart and at least 2 inches (50 mm) from any edge. Insert pins at least 2 inches (50 mm) in backing stone and 2 inches (50 mm) in partial replacement, but no closer than 3/4 inch (19 mm) from exposed face of partial replacement.
- E. Apply stone-to-stone adhesive according to adhesive manufacturer's written instructions. Coat bonding surfaces of backing stone and partial replacement, completely filling all crevices and voids.

- F. Apply partial replacement while adhesive is still tacky, and hold securely in place until adhesive has cured. Use shims, clamps, wedges, or other devices as necessary to align face of partial replacement with face of backing stone.
- G. Clean adhesive residue from exposed surfaces and patch chipped areas as specified in "Stone Patching" Article.

3.12 PIN REPAIR FOR STONE CRACKS

- A. Remove soil, loose particles, mortar, and other debris or foreign material from fragment surfaces to be bonded and from parent stone where fragment had broken off, by cleaning with stiff-fiber brush.
- B. Concealed Pinning: Before applying adhesive, prepare for concealed mechanical anchorage consisting of 1/4-inch (6-mm) diameter, threaded stainless-steel pins set into 1/4-inch (6-mm) diameter holes drilled into parent stone and into, but not through, the fragment.
 - 1. Center and space pins 3 to 5 inches (75 to 125 mm) apart and at least 2 inches (50 mm) from any edge. Insert pins at least 2 inches (50 mm) in parent stone and 2 inches (50 mm) in fragment, but no closer than 3/4 inch (19 mm) from exposed face of fragment.
- C. Apply stone-to-stone adhesive according to adhesive manufacturer's written instructions. Coat bonding surfaces of fragment and parent stone, completely filling all crevices and voids.
- D. Fit stone fragment onto parent stone while adhesive is still tacky, and hold fragment securely in place until adhesive has cured. Use shims, clamps, wedges, or other devices as necessary to align face of fragment with face of parent stone.
- E. Clean adhesive residue from exposed surfaces and patch chipped areas and exposed drill holes as specified in "Stone Patching" Article.

3.13 CRACK INJECTION AT STONE

- A. General: Comply with cementitious crack-filler manufacturer's written instructions.
- B. Drill 1/4-inch (6-mm) diameter injection holes as follows:
 - 1. Transverse Cracks Less Than 3/8 inch (9 mm) Wide: Drill holes through center of crack at 12 to 18 inches (300 to 500 mm) o.c.
 - 2. Transverse Cracks More Than 3/8 inch (9 mm) Wide: Drill holes through center of crack at 18 to 36 inches (500 to 900 mm) o.c.
 - 3. Delaminations: Drill holes at approximately 18 inches (500 mm) o.c., both vertically and horizontally.
 - 4. Drill holes 2 inches (50 mm) deep.
- C. Clean out drill holes and cracks with compressed air and water. Remove dirt and organic matter, loose material, sealants, and failed crack repair materials.
- D. Place plastic injection ports in drilled holes, and seal face of cracks between injection ports with clay or other nonstaining, removable plugging material. Leave openings at upper ends of cracks for air release.

- E. Inject cementitious crack filler through ports sequentially, beginning at one end of area and working to opposite end; where possible, begin at lower end of injection area and work upward. Inject filler until it extrudes from adjacent ports. After port has been injected, plug with clay or other suitable material, and begin injecting filler at adjacent port, repeating process until all ports have been injected.
- F. Clean cementitious crack filler from face of stone before it sets, by scrubbing with water.
- G. After cementitious crack filler has set, remove injection ports, plugging material, and excess filler. Patch injection holes and surface of cracks as specified in "Stone Patching" Article.

3.14 STONE PATCHING

- A. Patch the following stone units unless another type of repair or replacement is indicated:
 - 1. Usually retain first subparagraph below, and indicate units that require patching on Drawings.
 - 2. Stone location indicated to be patched.
 - 3. Retain three subparagraphs below, with or without subparagraph above; revise to suit Project.
 - 4. Units with holes.
 - 5. Consider retaining option in one or both subparagraphs below to define an acceptable defect size; revise to suit Project.
 - 6. Units with small areas of deep deterioration. Patch deep deteriorations measuring more than 3/4 inch (19 mm) in least dimension and over 1/4 inch (6 mm) deep.
- B. Retain first paragraph below if there are existing patches in unsatisfactory condition. Retain one of two options; retain first if not all existing patches require replacement and their locations are indicated on Drawings; revise to suit Project.
- C. Remove and replace existing patches unless otherwise indicated or approved by Architect.
- D. Remove deteriorated material and remove adjacent material that has begun to deteriorate. Carefully remove additional material so patch does not have feathered edges but has square or slightly undercut edges on area to be patched and is at least 1/2 inch (12 mm) thick, but not less than as recommended in writing by patching compound manufacturer.
- E. Mask adjacent mortar joint or rake out for repointing if patch extends to edge of stone unit.
- F. Retain first paragraph below for stone units that exhibit color variations.
- G. Mix patching compound in individual batches to match each stone unit being patched. Combine one or more colors of patching compound, as needed, to produce exact match.
- H. Brush-coat stone surfaces with slurry coat of patching compound according to manufacturer's written instructions.
- I. Place patching compound in layers as recommended in writing by patching compound manufacturer, but not less than 1/4 inch (6 mm) or more than 2 inches (50 mm) thick. Roughen surface of each layer to provide a key for next layer.

1. Simple Details: Trowel, scrape, or carve surface of patch to match texture and surrounding surface plane or contour of the stone. Shape and finish surface before or after curing, as determined by testing, to best match existing stone.
 2. Carved Details: Build patch up 1/4 inch (6 mm) above surrounding stone, and carve surface to match adjoining stone after patching compound has hardened.
- J. Keep each layer damp for 72 hours or until patching compound has set.
- K. Remove and replace patches with hairline cracks or that show separation from stone at edges, and those that do not match adjoining stone in color or texture.

3.15 BRICK MASONRY PATCHING

- A. Patch the following bricks unless another type of repair or replacement is indicated:
1. Units or locations such as abandoned anchors, injection ports, scaffold attachment points, etc. indicated to be patched.
 2. Units with holes.
- B. Spalled brick units shall be replaced. Patch repairs at brick spalls shall be unacceptable.
- C. Patching Bricks:
1. Remove loose material from masonry surface. Carefully remove additional material so patch does not have feathered edges but has square or slightly undercut edges on area to be patched and is at least 1/2 inch (12 mm) thick, but not less than recommended in writing by patching compound manufacturer.
 2. Mask adjacent mortar joint or rake out for repointing if patch extends to edge of brick.
 3. Retain first subparagraph below for bricks that exhibit a color variation.
 4. Mix patching compound in individual batches to match each unit being patched. Combine one or more colors of patching compound, as needed, to produce exact match.
 5. Rinse surface to be patched and leave damp, but without standing water.
 6. Brush-coat surfaces with slurry coat of patching compound according to manufacturer's written instructions.
 7. Place patching compound in layers as recommended in writing by patching compound manufacturer, but not less than 1/4 inch (6 mm) or more than 2 inches (50 mm) thick. Roughen surface of each layer to provide a key for next layer.
 8. Trowel, scrape, or carve surface of patch to match texture and surrounding surface plane or contour of the brick. Shape and finish surface before or after curing, as determined by testing, to best match existing brick.
 9. Keep each layer damp for 72 hours or until patching compound has set.

3.16 MASONRY REPOINTING, GENERAL

- A. Have repointing work performed only by qualified historic treatment specialist.
- B. Appearance Standard: Repointed surfaces are to have a uniform appearance as viewed from 20 feet (6 m) away by Architect.

3.17 REPOINTING

- A. Rake out and repoint joints to the following extent:
 - 1. All joints in areas indicated.
 - 2. Joints indicated as sealant-filled joints.
- B. Do not rake out and repoint joints where not required.
- C. Rake out joints as follows, according to procedures demonstrated in approved mockup:
 - 1. Revise first subparagraph below according to depth required to rake out joints for Project. See the Evaluations.
 - 2. Remove mortar from joints to depth of 2-1/2 times joint width and not less than that required to expose sound, unweathered mortar. Do not remove unsound mortar more than 2 inches (50 mm) deep; consult Architect for direction.
 - 3. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
 - 4. Do not spall edges of masonry units or widen joints. Replace damaged bricks and stones as directed by Architect.
 - a. Cut out mortar by hand with chisel and resilient mallet. Do not use power-operated grinders without Architect's written approval based on approved quality-control program.
 - b. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar in bed joints and mortar in head joints by hand with chisel and resilient mallet. Strictly adhere to approved quality-control program.
- D. Notify Architect of unforeseen detrimental conditions, including voids in mortar joints, cracks, loose masonry units, rotted wood, rusted metal, and other deteriorated items.
- E. Pointing with Mortar:
 - 1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
 - 2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch (9 mm) until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
 - 3. After deep areas have been filled to same depth as remaining joints, point joints by placing mortar in layers not greater than 3/8 inch (9 mm). Fully compact each layer and allow it to become thumbprint hard before applying next layer. Where existing brick have worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed masonry surfaces or to featheredge the mortar.
 - 4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing.

5. Retain first subparagraph below for all mortars. Proper moist curing is critical for high-lime-content mortars.
6. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.
7. First two subparagraphs below may be deleted for mortars with high portland cement content.
8. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.
9. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.
10. Revise subparagraph below to suit Project.
11. Over-pointing, hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Remove mortar and repoint.

F. Pointing with Sealant:

1. After raking out, keep joints dry and free of mortar and debris.
2. Option in first subparagraph below establishes priming as default requirement rather than relying on Contractor's judgment.
3. Clean and prepare joint surfaces. Prime joint surfaces unless sealant manufacturer recommends against priming. Do not allow primer to spill or migrate onto adjoining surfaces.
4. Fill sealant joints with specified joint sealant:
 - a. Install cylindrical sealant backing beneath the sealant. Where space is insufficient for cylindrical sealant backing, install bond-breaker tape.
 - b. Install sealant using only proven installation techniques that ensure that sealant is deposited in a uniform, continuous ribbon, without gaps or air pockets, and with complete wetting of the joint bond surfaces equally on both sides. Fill joint flush with surrounding masonry and matching the contour of adjoining mortar joints.
 - c. Install sealant as recommended in writing by sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead:
 - d. Fill joints to a depth equal to joint width, but not more than 1/2 inch (13 mm) deep or less than 1/4 inch (6 mm) deep.
 - e. Tool sealant to form smooth, uniform beads, slightly concave. Remove excess sealant from surfaces adjacent to joint.
 - f. Retain "Sanded Joints" Subparagraph below to dull the surface of sealant and blend it better with mortar joints. Sealant manufacturers generally do not recommend this procedure because their sealants are not performance tested with this treatment.
 - g. Sanded Joints: Immediately after first tooling, apply ground-mortar aggregate to sealant, gently pushing aggregate into the surface of sealant. Lightly retool sealant to form smooth, uniform beads, slightly concave. Remove excess sealant and aggregate from surfaces adjacent to joint.

- h. Do not allow sealant to overflow or spill onto adjoining surfaces, or to migrate into the voids of adjoining surfaces, particularly rough textures. Remove excess and spillage of sealant promptly as the work progresses. Clean adjoining surfaces by the means necessary to eliminate evidence of spillage, without damage to adjoining surfaces or finishes, as demonstrated in an approved mockup.
- G. Where repointing work precedes cleaning of existing masonry, allow mortar to harden at least 30 days before beginning cleaning work.

3.18 MINERAL PAINT COATING APPLICATION

- A. After masonry repairs and repointing have fully cured, provide opaque coating over select masonry areas at North, West and East facades. See Restoration Elevations for locations and extents.
 - 1. Follow all of the coating manufacturer's recommendations.
 - 2. Allow for preparing the surface of the masonry and any existing paint coatings in sound condition to remain, prior to applying the approved mineral paint coating.
 - 3. Allow for a 3-coat application per manufacturer's recommendations.

3.19 INSTALLATION

- A. Do not mix or apply materials when the ambient temperature or humidity are outside of range recommended by their manufacturers.
- B. Schedule conservation treatments to be carried out during appropriate environmental conditions to avoid weather-related failures.

3.20 MASONRY CLEANING

- A. Preclean surfaces and remove large particles with wood scrapers or nonferrous wire brush.
- B. Perform cleaning and rinsing of exterior masonry only during daylight hours.
- C. Preparatory Exterior Masonry Cleaning: Use safe spray pressures for each type of item to be cleaned.
- D. Use medium-pressure spray at 400 to 800 psi (2.76 to 5.52 MPa).
- E. After mock-up testing of dwell time and number of dwells approved, proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other.
- F. Use only those cleaning methods indicated for each masonry material and location.
- G. Perform each cleaning method indicated in a manner which results in uniform coverage of all surfaces, including corners, moldings, interstices and which produces an even effect without streaking or damage to masonry surfaces.
- H. Rinse off chemical residue and soil by working upwards from bottom to top of each treated area at each stage or scaffold setting.
- I. Restoration Cleaners:

1. Do not use acidic chemical cleaners on limestone, marble, concrete, or other calcareous masonry materials.
2. Apply restoration cleaner on masonry using brush or roller in accordance with manufacturer's instructions.
3. Provide a second application if required to match mock-up area.
4. Allow sufficient time, as recommended by manufacturer, for solution to remain on masonry.

J. Restoration Poultices:

1. For poultices requiring mixing with water, comply with manufacturer's instructions for desired troweling consistency.
2. Apply poultice to surface with plasterer's trowel or paste extrusion equipment. Apply a uniform 1/4-inch (6 mm) coating.
 - a. Cover poultice area with film recommended by manufacturer. Remove air pockets and ensure smooth overall adhesion. Press the film against poultice and tape or seal edges.
 - b. Leave poultice on masonry surface for time period recommended by manufacturer. In extreme humidity, adjust time as recommended by manufacturer. Trial testing may be required to determine the most effective dwell time.
 - 1). Remove film. If still wet, let poultice dry for an additional 2 to 4 hours. Drying times may vary with environmental conditions such as temperature, wind, and humidity.
 - c. Remove poultice and dissolved staining matter as recommended by manufacturer. Remove as much poultice residue from the surface as possible.
3. Washing or Rinsing Vertical Surfaces:
 - a. Rinse from the bottom up with potable water applied at 600 psi (4140 kPa) and at a rate of 6 gpm (24 L/min) through a 15-to-45-degree fan spray tip.
 - 1). Use adjustable equipment capable of reducing water pressure and flow rate as needed for sensitive surfaces.
 - 2). Rinse with water and pressure sufficient to flush restoration cleaner and dissolved soiling from the masonry surface and surface pores without damaging masonry. Do not leave cleaning procedure residues on masonry.
4. Washing or Rinsing Horizontal Surfaces:
 - a. Wash surface thoroughly with fresh water using a sponge or cloth. Let surfaces dry thoroughly.

- K. Where repointing work precedes cleaning of existing masonry, allow mortar to harden at least 30 days before beginning cleaning work.

3.21 LEAD JOINT COVERS

- A. Mask off joints, apply joint sealant, and install lead joint cover in accordance with manufacturer's instructions.

3.22 CLEANING

- A. Remove all protection including tape, polyvinyl sheets, and strippable mask.
- B. Remove stains, efflorescence, or other excess resulting from the work of this section. Do without delay to avoid penetration and setting.
- C. All residues washed from building surfaces shall be swept or flushed away from surrounding sidewalks and service areas nightly. All premises shall be clean and neat at all times.
- D. Remove excess mortar, smears, and droppings as work proceeds and upon completion.
- E. Clean surrounding surfaces.
- F. Repair damage to adjacent surfaces, buildings, susceptible building materials, mortar joints, vehicles, and the like caused by cleaning operations at no additional cost to the Owner.

END OF SECTION

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SECTION 042000 UNIT MASONRY

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the unit masonry work as shown on the drawings and/or specified herein, including but not necessarily limited to the following:
 - 1. Concrete block walls and partitions.
 - 2. Face brick.
 - 3. Metal joint reinforcing, anchors, ties, weeps, closures and related accessories for masonry.
 - 4. Control and expansion joints in masonry, filled with joint fillers.
 - 5. Thru-wall flashing.
 - 6. Mortar net.
 - 7. Chases, recesses, pockets and openings in masonry as required for installation of work by others.
 - 8. Building in of items furnished by others into masonry, including access doors, door frames, anchors, sleeves and inserts, and other similar items to be embedded in masonry.
 - 9. Grouting in of metal items built into masonry work.
 - 10. Protection, pointing and cleaning of masonry.

1.3 RELATED SECTIONS

- A. Restoration Treatment and Cleaning for Historic Masonry – Section 040300.
- B. Cold formed metal framing - Section 054000.
- C. Steel lintels - Section 055000.
- D. Building insulation - Section 072100.
- E. Metal flashing - Section 076200.
- F. Firestops and smoke seals - Section 078413.
- G. Sealant - Section 079200.

1.4 SUBMITTALS

A. Submit Shop Drawings for the following:

1. Anchoring details.
2. Control and expansion joint locations and details.
3. Special brick shapes, including large scale shop drawings showing configuration and dimensions.
4. Flashing at typical lintels indicating relationship of flashing to lintel hangers.

B. Submit Samples for the following:

1. Each type of face brick in sufficient number and color (not less than 5) to show full range of color, texture and shade. Submit certification that brick meets ASTM standards specified herein.
 - a. Submit samples of all special shapes required showing color range and sizes.
2. Joint reinforcing, each type, width and proposed location (labeled).
3. Anchors, wedges and ties, each type, width and proposed location (labeled).
4. Joint filler, each type.
5. Flashing, including splice sample, 12" long.
6. Mortar color, 12" long cured sample.

C. Submit technical and installation information for the following:

1. Mortar materials, each material and mortar type.
2. Certification of mortar mix.
3. Flashing material, descriptive literature.
4. Concrete block, joint reinforcing, anchors, ties and joint filler; submit manufacturer's technical and descriptive literature.
5. Block manufacturer shall submit certifications of compliance with ASTM C 90, C 331 and UL 618 prior to any job site delivery. Field sampling of concrete block may be tested by an Independent Testing Laboratory retained by the Owner according to the requirements of ASTM C 140.

D. Construction Procedures (Submit the following)

1. Procedures and materials for cleaning masonry work; including certification that cleaner will not adversely affect stone, gaskets, sealants, etc.

E. Delegated-Design Submittal: Comply with performance requirements and design criteria as set for in Chapter 21 of the New York State Building code and TMS 402/602, ACI 530, and ASCE

5 including analysis data signed and sealed by the Professional Engineer licensed in the State of New York responsible for their preparation as required.

1.5 QUALITY ASSURANCE

A. Conform to the following non-cumulative tolerances (any masonry work not meeting these standards shall be re-built as directed by the Architect).

1. Variation from the plumb:

- a. In lines and surfaces of columns, walls and arrises:
 - 1). In 10 feet 1/8"
 - 2). In any story of 25 feet maximum 1/4"
 - 3). In 40 feet or more 1/4"
- b. For external corners, expansion joints and other conspicuous lines:
 - 1). In any story of 25 feet maximum 1/4"
 - 2). In 40 feet or more 3/8"

2. Variation from the level or the grades indicated on the drawings; for exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines:

- a. In any bay or 20 feet maximum 1/4"
- b. In 40 feet or more 1/4"

3. Variation of the linear building lines from established position in plan related portion of columns and partitions:

- a. In any bay or 20 feet maximum 1/4"
- b. In 40 feet or more 1/2"

4. Variation in cross-sectional dimensions of columns and in thickness of walls:

- a. Minus 1/8"
- b. Plus 1/8"

5. Variation in dimensions of masonry openings:

- a. Horizontal dimension -0" + 1/16"
- b. Vertical dimension +0" - 1/16"

B. Job Mock-Up

1. Prior to installation of masonry work, erect sample wall panel mock-up using materials, bonding patterns and joint tooling required for final work and including cavity wall, masonry sill, typical pier with returns and stone base, window unit and sill, projecting courses, anchors and reinforcement as detailed. Provide special features as directed by the Architect for caulking and contiguous work. Build mock-up at the site, 4' x 4' size as directed by the Architect, indicating the proposed range of colors, textures and workmanship to be expected in the completed work. Reconstruct mock-up if directed by the Architect until it meets with Architect's approval. Obtain Architect's acceptance of visual qualities of the mock-up before start of masonry work. Retain mock-up during construction as a standard for judging completed masonry work. Do not alter, move or destroy mock-up until work is completed and accepted by the Architect. Use sample

panels to test proposed cleaning procedures after sample panel meets with Architect's approval.

2. Approved sample panel shall remain on view at the site until completion of face brick work and shall establish the technical and aesthetic standards for the Project.
3. Architect shall direct distribution of brick color and texture variation within mock-up.

C. Factory Control

1. The Architect reserves the right to visit the brick manufacturer's facility and review pre-sorting so that all brick falls within a color range acceptable to the Architect.
2. 4' x 4' mock-ups shall be constructed at the factory using the face brick specified. This mock-up, after approval of the Architect, shall become the quality control panel for the selected brick.
3. Prior to any shipment of the face brick from the factory, the Architect reserves the right to inspect the brick for the thoroughness of the pre-sorting and to reject any brick which in his opinion do not fall within acceptable color range.

D. Work of this Section shall conform to the requirements of the following (unless otherwise superseded by prevailing Building Code):

1. 2008 ACI 530/ASCE 5/TMS 402 Building Code Requirements for Masonry Structures.
2. 2008 ACI 530-1/ASCE 6/TMS 602 Specifications for Masonry Structures.
3. Brick Industry Association (BIA) "Technical Notes on Brick Construction."

E. Pre-Construction Conference: Prior to installation of masonry and associated work, Contractor shall arrange a meeting with Masonry Subcontractor, installers of related work, and other entities concerned with masonry wall performance, including the Architect and Owner. Contractor shall record discussions and agreements and furnish copy to each participant. Provide at least seventy-two (72) hours' advance notice to participants prior to convening conference. Review methods and procedures related to masonry work, including, but not limited to, the following:

1. Review masonry requirements (drawings, specifications and other Contract Documents).
2. Review required submittals, both completed and yet to be completed.
3. Review and finalize construction schedule related to masonry work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
4. Review required inspection, testing, certifying and material usage accounting procedures.
5. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions.
6. Coordinate work with air/vapor barrier membrane and related flashing, review details to avoid conflicts.

1.6 PRODUCT HANDLING

- A. General: Deliver, store, handle and protect all materials from damage, moisture, dirt and intrusion of foreign matter. Store all masonry units and mortar materials on raised platforms and under ventilated and waterproof cover. Store packaged materials in manufacturer's unopened containers, marked with manufacturer's name and product brand name. Immediately reseal containers after partial use. Remove and replace damaged materials.
- B. Masonry Units: Pack, deliver and store to prevent breakage, cracking, chipping, spalling or other damage. Store, protect and ventilate units at project site.
- C. Aggregate: Store with provisions for good drainage.
- D. Reinforcement and Anchors: Store and protect so that when placed, joint reinforcement and anchors will be free of soil, dirt, ice, loose rust, scale, or other coatings which would destroy or reduce bond with mortar, and will not be disfigured or bent out of shape.

1.7 CODE REQUIREMENTS

- A. Work of this Section shall conform to all applicable requirements of the New York State Building Code.

1.8 TESTING FOR EFFLORESCENCE

- A. Test selected face brick for efflorescence in accordance with ASTM C 67.
- B. If, at the end of the test period, the samples of brick or mortar show efflorescence, the materials represented shall be rejected and new materials shall be re-tested. This process shall be repeated until no efflorescence appears. Testing shall be done by an independent testing laboratory at the expense of the Contractor; submit test results in writing to the Architect.

1.9 JOB CONDITIONS

- A. In cold weather, when the outside temperature is below forty (40) degrees F., conform to the requirements of "Cold Weather Masonry Construction and Protection Recommendations" publication by Brick Industry Association (BIA). No anti-freeze admixtures are permitted.
 - 1. In addition, conform to the following:
 - a. Masonry materials must be warmed as required.
 - b. Brickwork must be protected a minimum of 24 hours after installation so as to maintain enough heat for hydration of the cement in the mortar.
- B. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 100 deg. F. and above. In addition, conform to the following:
 - 1. Masonry materials must be cool.
 - 2. Mortar must be used within 2 hours of initial mixing.

- C. Protection of Masonry: During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24" down both sides and hold cover securely in place.
 - 2. Where one wythe of multi-wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24" down face next to unconstructed wythe and hold cover in place.
- D. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and mortar splatter by coverings spread on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt on completed masonry.

1.10 ATTIC STOCK

- A. Provide additional 10% of dry mortar mix labeled, packaged and delivered to location determined by Owner for attic stock.
- B. Provide additional 5% of brick labeled, packaged and delivered to location determined by Owner for attic stock.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Standard Concrete Block
 - 1. Portland cement, ASTM C 150, Type 1, low alkali (less than 65) one source.
 - 2. Aggregates, ASTM C 331, lightweight expanded shale, clay or slate aggregates, manufactured by the rotary kiln process equal to "Solite," "Norlite," or "Haydite."
 - a. Block scheduled to receive painted finish shall contain normal weight aggregate meeting ASTM C-33 in addition to light weight aggregate in order to receive a smooth, uniform finish.
 - 3. Concrete Masonry Units: Load bearing lightweight aggregate concrete masonry units conforming to the requirements of ASTM C 90.
 - a. Block behind face brick and block for rated walls shall be 75% solid units.
 - b. All other block may be hollow units.

4. The producer of the concrete masonry units shall furnish certification from an independent testing laboratory confirming that all 8" or larger masonry units meet all of the UL 618 requirements for two (2) hours or better (as required), referencing full scale fire test reports (ASTM E 119). All 4" and 6" units shall conform to "National Bureau of Standards" and "National Research Council" full scale fire tests.
5. Sizes and Shapes: Nominal face size 8" x 16" by thickness as indicated on drawings, with stretcher units, jamb units, header units, square corner units (at ends and corners of exposed or painted work), sash units (at control joints within masonry wall), lintel units and other special shapes and sizes required to complete the work.
6. Finish: For exposed or painted block surfaces, in addition to ASTM requirements, block shall have uniformly dense, flat, fine grain texture, with no cracks, chips, spalls, or other defects which would impair appearance. For concealed CMU, surfaces shall be free from deleterious materials that would stain plaster or corrode metal.
7. Curing: All concrete block shall be steam cured, and air dried for not less than thirty (30) days before delivery.
8. Density of concrete block shall not exceed one hundred and five (105) lbs. per cubic foot.
9. Shrinkage: Shrinkage of concrete blocks shall not exceed 0.065% when tested in accordance with ASTM C 426-99.
10. Water Content
 - a. At the time of delivery to the job site, concrete masonry units shall have a value, in weight of contained water, of not more than thirty (30) percent of the fully saturated content for the unit tested.
 - b. Ship all units from the factory, and store at the job site, with all necessary protection to prevent increase of water content from rain and other sources.

B. Brick

1. Size: Unless otherwise indicated, provide modular bricks size as follows - 3-5/8" h. x 2-1/4" th. x 7-5/8" w.
2. Facing Brick: ASTM C 216, Grade SW, Type FBX, equal to match existing.
3. Where brick is fully concealed provide common brick conforming to ASTM C 62, Grade SW.
4. Provide all special molded shapes as indicated on the drawings.
5. For sills, caps and similar applications resulting in exposure of brick surfaces which otherwise would be concealed from view, provide uncured units with all exposed surfaces finished.

C. Joint Reinforcing for Masonry Walls

1. Non-Seismic Construction: For anchoring face brick to CMU back-up, provide welded "ladder" design, of 3/16" dia. gauge steel rods with adjustable 3/16" wire rectangular pintle anchors fastened to reinforcement 16" o.c. Provide special formed prefabricated pieces at corners and intersections of walls or partitions. Anchors to extend at least 2" into face of

brick. Show anchor locations on approved shop drawings. Joint reinforcing shall be equal to Ladder Type 270 with "Lox All Adjustable Anchor" made by Hohmann & Barnard or equal manufactured noted below in Para. C.6.

- a. Reinforcing assembly shall have hot dip galvanized steel finish conforming to ASTM A 153 with zinc coating of 1.5 oz. of zinc per sq. ft. after fabrication.
2. Seismic Construction: For anchoring face brick to CMU back-up, provide No. 280 "S.I.S. Dub'l Loop-Lock Ladder Seismiclip Interlock System" made by Hohmann & Barnard or equal by manufacturer noted below in Para. C.6. All wire used in assembly shall be 3/16" dia. Assembly shall contain ladder reinforcing, welded loops, box tie, seismiclip and continuous wire in face brick mortar joint. Provide special formed prefabricated pieces at corners and intersections of walls or partitions. Reinforcing wire in face brick mortar joint to extend at least 2" into face of brick. Show anchor locations on approved shop drawings.
 - a. Reinforcing assembly shall be hot dip galvanized steel finish conforming to ASTM A 153 with zinc coating of 1.5 oz. of zinc per sq. ft., after fabrication.
3. For interior block walls and partitions, provide standard reinforcing fabricated of 9 ga. side and cross rods, truss or ladder design, no ties, spaced every other block course. Provide prefabricated pieces at corners and intersections of walls or partitions. Reinforcing shall be mill galvanized conforming to ASTM A 641, Class B-1, applied after fabrication.
4. Wire used in assemblies noted above shall be cold drawn steel wire conforming to ASTM A 82.
5. Approved Joint Reinforcing Manufacturers
 - a. Hohmann & Barnard
 - b. Wire-Bond
 - c. Heckmann Building Products
 - d. National Wire Products Industries, Inc.

D. Anchors and Ties

1. For anchoring brick to cold formed metal framing, provide one of the following or approved equal by other manufacturers noted above in Para. C.5:
 - a. "Wing-Nut Pos-I-Tie" with self-drilling screw for steel studs zinc barrel and thermal wing-nut as manufactured by Heckmann Building Products. Provide Seismic Wire Pintle Tie hot-dip galvanized steel.
 - b. Hot-dip galvanized steel anchors equal to "X-Seal Veneer Anchor" with "X-Seal Tape" as manufactured by Hohman & Barnard or approved equal. Provide Model 187 "Seismiclip" with 9 ga. Wire.
2. Wire Mesh: Hot-dip galvanized sixteen (16) gage steel wire, square mesh, width intended for size of block by length to suit condition, or approved equal by manufacturer noted above in Para. C.5.
3. For anchoring masonry to structural steel, provide hot-dip galvanized steel, as listed, or approved equal by manufacturer noted above in Para. C.5:

- a. Made by Heckmann Building Products. Galvanizing shall conform to ASTM A 153, with zinc coating of 1.5 oz. of zinc per sq. ft.
 - 1). No. 195 Column Anchors
 - 2). No. 197 Column Anchors
 - 3). No. 315 Weld-On Anchor Rods with No. 316 Triangle Ties
 - 4). No. 315-B Weld-On Anchor Straps with No. 316 Triangle Ties
 - b. Made by Hohmann & Barnard or approved equal. Galvanizing shall conform to ASTM A 153, with zinc coating of 1.5 oz. of zinc per sq. ft.
 - 1). No. 355 Column Anchors
 - 2). No. 356 Column Anchors
 - 3). No. 357 Beam Anchors
 - 4). No. 359 F anchor straps with VWT tie.
 4. For anchoring CMU interior partitions to underside of steel beams, provide hot dip galvanized steel tube anchors equal to No. 419 and No. 421 made by Heckmann Building Products, No. PTA-420 made by Hohmann & Barnard, or approved equal by manufacturer noted above in Para. C.6.
 5. For anchoring CMU interior partitions to underside of structural deck, provide 4" x 4" x 1/4" galvanized steel angles (ASTM A 36), 3'-0" long spaced 3'-0" o.c. alternately on each side of partition. Anchor partition securely to structural deck.
- E. Reinforcing Bars and Rods: ASTM A 615, Grade 60. See Drawings for size.
- F. Control and Expansion Joint Fillers
 1. Vertical Installation Within Concrete Masonry Wall: Extruded high grade neoprene rubber, cross shape, for use with concrete masonry sash units, which shall provide a force fit in the grooves of the sash block, and shall have 1/2" diameter tubular ends (compressed 25% when installed in 3/8" wide joint).
 - a. Provide the following sizes:
 - 1). 2-5/8" wide control joint fillers for 4" block walls.
 - 2). 4-5/8" wide for 6" block walls.
 - 3). 6-5/8" wide for 8", 10" and 12" block walls.
 - b. Provide backer rod and sealant joint over joint filler as per drawings and Section 079200 of these specifications.
 2. Isolation Joint Filler at Abutting Construction and at Intersecting CMU Walls: Compressible and resilient closed cell neoprene gasket with pressure sensitive adhesive backing, thickness 30% greater than thickness of joint. Acceptable joint filler shall be "Everlastic, Type NN-1" by Williams Products, Inc., or approved equal. Recess joint filler and install backer rod and sealant as per drawings and Section 079200 of these specifications.
 3. Within Face Brick: Provide filler rod and sealant installed by Section 079200. Filler depth shall be 2 times joint width.
 - a. Compressible filler between top of brick and bottom of shelf angle or steel lintel shall be "Soft Joint Sealant" made by Polytite, or approved equal.

4. Within Expansion Joint at Face Brick: Manufacturer's standard preformed, pre-compressed, open-cell polyurethane foam sealant impregnated with a water based, non-drying polymer modified acrylic water repellent. Provide "Seismic Colorseal" installed to twenty-five 25 percent compression, as manufactured by Emseal or approved equal.
 - a. Properties: Permanently elastic, mildew resistant, non-migratory, non-staining, and compatible with joint substrates and other joint sealants. Density: 8.4 to 9.1 lb./cu. ft..

2.2 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type 1, standard color, one source.
- B. Hydrated Lime: ASTM C 207, Type S, as manufactured by Corsons, or approved equal.
- C. Aggregate: Clean, washed, buff colored sand, graded per ASTM C 144.
- D. Aggregate for Grout: ASTM C 404.
- E. Water: Clean, fresh and suitable for drinking.

2.3 MORTAR MIX

- A. Exterior Face Brick Construction: Mortar mixes shall meet ASTM C 270, Type N, cement/lime mortar. Colors of mortars shall use coloring agent made by Davis Colors, Lehigh Cement or approved equal. Color of mortar to meet with Architect's approval. The Contractor may use pre-packaged colored mortar equal to "Color Mortar Blend" made by Glen-Gery.
 1. Color of mortar must meet with Architect's approved sample and mock-up panel.
- B. Exterior Block Back-Up Construction: Provide Portland cement/lime mortar as noted above conforming to ASTM C 270, Type N.
- C. Interior Masonry Construction: Provide Portland cement/lime mortar conforming to ASTM C 270, Type N, for load bearing conditions, mortar shall conform to ASTM C 270, Type M.
- D. Reinforced Concrete Block: Provide Portland cement/lime mortar conforming to ASTM C 270, Type S.
- E. Mortar for Cement Cants: One (1) part Portland cement and four (4) parts sand, by volume.
- F. Grout for Unit Masonry: Comply with ASTM C 476 for grout for use in construction of unit masonry. Use grout of consistency (fine or coarse) at time of placement which will completely fill all spaces intended to receive grout. Grout shall have a minimum compressive strength of 3000 psi when tested in accordance with ASTM C 1019.
- G. Mixing
 1. General: Add cement just before mixing and mix dry. Use sufficient amount of water as necessary to produce workable mix. Mix in small batches to make plastic mass.
 2. Mixing: Machine mix all mortars in approved type mixer with device to accurately and uniformly control water. Add hydrated lime dry. Mix dry materials not less than two (2) minutes. Add water, then mix not less than three (3) minutes, not to exceed five (5)

minutes. Mix only amount of mortar that can be used before initial set. Do not use mortar which has reached its initial set or two (2) hours after initial mixing, whichever comes earlier. Mortar may not be re-tempered. Clean mixer for each batch, whenever mortar type is changed, and at end of each day's work.

3. Acceleration or other admixtures not permitted.
4. Mortar shall have a flow after suction of not less than seventy-five (75) percent of that immediately after mixing as determined by ASTM C 91.

H. Admixtures

1. No air-entraining admixtures or cementitious materials containing air-entraining admixtures shall be used in the mortar.
2. No antifreeze compounds or other substances shall be used in the mortar to lower the freezing point.
3. Calcium chloride or admixtures containing calcium chloride shall not be used in mortar.

2.4 WEEP HOLES

- A. Provide clear plastic weep holes 3/8" wide and 1-1/2" high by four (4) inches long equal to No. 342 made by Hohmann & Barnard or approved equal manufacturer listed above.

2.5 THROUGH-WALL FLASHING

- A. Provide sheet membrane flashing as part of exterior wall membrane system. Provide sealants and tapes as recommended by the manufacturer. Provide preformed corner sections "end dams" with system when flashing is discontinuous.
 1. Provide flashing for surface adhered applications at sheathed areas with 26 ga. stainless steel termination bar.
 2. Wall flashing shall have 26 ga. stainless steel drip edge adhered to edge of flashing, drip edge shall be set in sealant as specified in Section 079200.

2.6 MORTAR NET

- A. Provide 10" high HDPE "Mortar Net" open mesh mortar net of width to fit masonry cavity shown on drawings, manufactured by Hohmann & Barnard, or equal "Mortar Break II," made by Advanced Building Products.

PART 3 EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection

1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

2. Verify that masonry may be completed in accordance with all pertinent codes and regulations, the referenced standards, and the original design.
3. Do not start any work until mock-ups are approved by the Architect.

B. Discrepancies

1. In the event of discrepancy, immediately notify the Architect in writing.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
3. Starting of work by the Contractor means acceptance by the Contractor of the substrate.

3.2 COORDINATION

- A. Carefully coordinate with all other trades to ensure proper and adequate interface of the work of other trades with the work of this Section.

3.3 PREPARATION

A. Brick

1. Wet brick having an initial rate of absorption greater than 30 grams per 30 square inches when tested per ASTM C67. Wet bricks by allowing water to run on the cubes or pallets of brick, or placing them in a large tank of water.
2. Except for absorbent units specified to be wetted, lay masonry units dry.

- B. Concrete Block: Do not wet concrete block units.

3.4 INSTALLATION

A. General

1. Build walls to the full thickness shown. Build single wythe walls to the actual thickness of the masonry units, using units of nominal thickness shown.
2. Build chases and recesses as shown or required for the work of other trades.
3. Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.
4. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to properly locate openings, movement type joints, returns and off-sets. Avoid the use of less than half size units at corners, jambs and wherever possible.
5. Lay up walls plumb and true with courses level, accurately spaced and coordinated with other work.
6. Provide templates made of steel studs for plumbing of two story masonry openings.
7. Pattern Bond: Lay exposed masonry patterns as noted on drawings. If not shown, provide running bond. Lay concealed concrete block with all units in a wythe bonded by lapping

not less than two (2) inches. Bond and interlock each course of each wythe at corners. Do not use units of less than four (4) inches horizontal face dimensions at corners or jambs.

8. Where possible, masonry walls and partitions shall be built after all overhead ducts, pipes and conduits are in place and tested. Masonry shall be neatly built around the items above. Walls and partitions shall be plumb, true to line and free from defects such as open cells, voids, dry joints and other similar defects. In rooms and spaces scheduled to have concrete block finish, all such surfaces including upper wall surfaces up to termination of structural ceiling in spaces without suspended ceilings, shall be made suitable for paint application. Cutting of openings in walls and partitions in place shall be done only with the approval of the Architect.
9. Do not use any brick that do not meet chippage and tolerances of the applicable ASTM standard noted herein for the grade, type or class of brick.
10. Mortar, ties and reinforcement must not extend into or bridge any expansion joints.

B. Mortar Bedding and Jointing

1. All joints between bricks shall be completely filled with mortar. Bed joints shall be beveled per BMI recommendations, with the brick then shoved in place. At cavity wall construction, care shall be taken that no excess mortar goes into masonry cavity. Head joints shall be completely filled with mortar and shall be formed by applying a full coat of mortar to the entire end or the entire side, as the case requires, and then shoving the mortar covered end and/or side of the brick tightly against the bricks previously laid; the practice of "slushing" by throwing mortar into the head joints will not be permitted. All brick shall be laid without disturbing the brick previously laid. Brick shall be laid within a minute or so after the mortar is placed. Dry or butt joints will not be permitted. Grouting shall be done only as necessary. Do not slush head joints.
2. After brick placement, mortar squeezed out of bed joints shall be cut off before tooling.
3. Lay concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on exterior walls and in all courses of piers, columns and pilasters, where solid CMU is used and where adjacent to cells or cavities to be reinforced or filled with concrete or grout.
 - a. To ensure alignment of brick and block coursing, adjust block back-up by cutting block to insure alignment of coursing or use adjustable anchorage.
4. Lay masonry walls with 3/8" joints unless otherwise shown on drawings.
5. Tool exposed joints slightly concave after the mortar joint is "thumbprint" hard. Concealed joints shall be struck flush, including at any CMU schedule to receive a waterproofing or air barrier membrane.
6. Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners at jambs to fit stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.

C. Stopping and Resuming Work: Rake back 1/2 brick length in each course; do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if required) and remove loose masonry units and mortar prior to laying fresh masonry.

D. Built-In Work

1. As the work progresses, build in items specified under this and other Sections of these specifications. Fill in solidly with masonry around built-in items.
2. Mortar in door frames, access doors, louvers and other metal items embedded or built into masonry work solidly with mortar as the masonry units are laid up.
3. Grout under lintels, bearing plates, and steel bearing on masonry with solid bed grout.
4. Sleeves, pipes, ducts and all other items which pass through masonry walls shall be caulked with interior grade sealant meeting requirements of Section 079200, so as to be air tight and prevent air leakage. Refer to Section 078413 for packing of voids in rated masonry walls.
5. Fill vertical cells of masonry units solid with grout which have anchoring, reinforcing rods, supporting or hanging devices embedded in the cell including stone anchors and window or curtain wall anchors.
6. Fill vertical cells of masonry units solid with mortar on each side of door frames to sixteen (16) inches beyond.
7. Unless otherwise noted, fill vertical cells of masonry units solid with grout which are below steel bearing plates, steel beams, and ends of lintels, to eight (8) inches beyond bearing and from floor to bearing.
8. Place wire mesh in horizontal joint below masonry unit cells to be filled with mortar, to prevent mortar from dropping into unfilled cells below.
9. Masonry indicated as being reinforced shall have all voids filled solid with grout. Grout shall be consolidated in place by vibration or other methods which insure complete filling of cells. When the least clear dimension of the grouted cell is less than two (2) inches, the maximum height of grout pour shall not exceed twelve (12) inches. When the least clear dimension is two (2) inches or more, maximum height of grout pour shall not exceed forty-eight (48) inches. When grouting is stopped for one (1) hour or longer, the grout pour shall be stopped 1-1/2" below the top of a masonry unit. Vertical bar reinforcing shall be accurately placed and held in position while being grouted, and shall be in place before grouting starts. All such reinforcing shall have a minimum clear cover of 5/8". Lap all bars a minimum of forty (40) bar diameters and provide steel spacer ties (not to exceed 1/2 bar diameter) to secure and position all vertical steel and prevent displacement during grouting. Provide continuous horizontal reinforcement embedded in mortar joints every second course.

E. Cutting and Patching

1. All exposed masonry which requires cutting or fitting shall be cut accurately to size with motorized carborundum or diamond saw, producing cut edges.
2. Do not saw cut any masonry openings in face brick construction without Architect's approval and after a procedure has been reviewed and approved.
3. Holes made in exposed masonry units for attachment of handrail brackets and similar items shall be neatly drilled to proper size.

4. All masonry which requires patching in exposed work, if approved by Architect, shall be patched neatly with mortar to match appearance of masonry as closely as possible and to the Architect's satisfaction. Rake back joints and use pointing mortar to match as required.

F. Interior Block Partitions

1. Build to full height unless otherwise shown on drawings. At non-rated partitions fill void between CMU and structural deck with continuous neoprene filler conforming to the requirements of Section 079100. At fire rated partitions, fill void with fire stop material meeting the requirements of Section 078413. Fasten to structure at top of partition using steel angles as specified herein.
2. Provide continuous horizontal joint reinforcing every other block course, except as otherwise noted. Fully embed longitudinal side rods in mortar for their entire length with a minimum cover of 5/8". Lap reinforcement a minimum of six (6) inches at ends of units.
3. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures and other special conditions.
4. Corners
 - a. Provide interlocking masonry unit bond in each course at corners.
 - b. Provide continuity at corners with prefabricated "L" reinforcement units, in addition to masonry bonding.
5. Intersecting and Abutting Walls
 - a. Unless vertical control joints are shown as part of structural frame, provide interlocking masonry bond. Provide starters and special shapes as shown on the drawings to bond these walls.
 - b. In addition to masonry bonding, provide horizontal reinforcement using prefabricated "T" units at interior partitions.

G. Ties and Anchors for Masonry Construction

1. Provide ties and anchors as shown or specified, but not less than one metal tie, spaced not to exceed sixteen (16) inches o.c. horizontally and/or vertically. Provide additional ties within 1'-0" of all openings and adjacent to expansion joints and spaced not more than 16" apart around perimeter of openings.
2. Anchor masonry to structure complying with the following:
 - a. Provide an open space not less than 1/2" in width between masonry and structural member, unless otherwise shown. Keep open space free of mortar or other rigid materials.

H. Control and Expansion Joints

1. Provide expansion, control and isolation joints in masonry as shown. Build in related items as the masonry work progresses.

2. CMU Control Joint Spacing: If location of control joints is not shown, place vertical joints spaced not to exceed 25'-0" o.c. In addition, locate joints at points of natural weakness in the masonry work, including the following:
 - a. At structural column or joint between bay.
 - b. Above control joints in the supporting structure.
 - c. Above major openings at end of lintels upward and below at ends of sills downward. Place at one side of jamb for openings less than 6'-0" wide and at both sides for openings over 6'-0" wide.
 - d. At reduction of wall thickness.
 - e. Where masonry abuts supporting structure.
 - f. If additional joints are required, indicate same on approved shop drawings.

I. Lintels

1. Install loose steel lintels furnished by Section 055000, allowing eight (8) inch bearing at ends.
2. For concrete block walls, use specially formed U-shaped concrete block lintel units with reinforcing bars in accordance with the following table, filled with grout.

Number and Size of Reinforcing Bars Required at Concrete Block Lintels		
Maximum Clearance Span	Wall Width	Rebar No. - Size
2'-0" to 6'-0" 6'-0" to 8'-0"	6"	2 - #3 2 - #4
2'-0" to 6'-0" 6'-0" to 8'-0"	8"	2 - #3 2 - #4
2'-0" to 6'-0" 6'-0" to 8'-0"	12"	3 - #3 3 - #4

3. U-shaped concrete block lintels shall extend a minimum of 8" at each side of opening.

3.5 FLASHING/WEEP HOLES

- A. General: Install embedded flashing and weep holes in masonry at relieving angles, shelf angles, lintels, ledges, other obstructions to the downward flow of water in the wall, and where indicated. Space weeps 16" o.c. unless otherwise shown on drawings. Weeps shall occur immediately above the flashing.
- B. Prepare masonry surfaces so that they are smooth and free from projections that could puncture flashing.
- C. Flashing shall be placed, generally, at bottoms of cavity wall construction, over all wall openings, window jambs, at sills of window, and in other locations where indicated on the drawings. Flashing shall overlap a minimum of 6". At bottoms of cavity walls, the flashing shall be built extending from the exterior face of the brick, up and into the mortar joint 2" at the

inner wythe of the CMU back-up; at sheathed areas attached with pressure bar. At concrete spandrel beams and columns the flashing shall be installed with a termination bar. Extreme care shall be exercised in placing the masonry materials not to damage the flashing. Flashing damaged during the masonry erection shall be repaired or replaced by the Contractor at no additional cost to the Owner. Discontinuous flashing shall terminate with an end dam in a head joint, rising at least 1".

- D. When spanning an air space, flashing shall be supported with a mortar wash, insulation or treated wood blocking.
- E. Where flashing is penetrated by anchors, patch flashings at penetration using adhesive and mastic recommended by the manufacturer to insure watertight seal.
- F. Install flashing in accordance with manufacturer's instructions, using adhesive, primer, thinner, cleaner and mastic as recommended by flashing manufacturer.
 - 1. Flashing shall overlap adjacent piece of flashing a minimum of 6".
- G. Provide drip edge when flashing extends beyond face of brick.

3.6 CLEANING, PROTECTION, ADJUSTMENT

A. Protection

- 1. The Contractor shall take adequate precautions for the protection of all surfaces against mortar spatter, and shall immediately remove any such spatter should it inadvertently occur, leaving no stain or discoloration.
- 2. Excess mortar shall be wiped off the masonry surfaces as the work progresses.
- 3. Wood coverings shall be placed over all such masonry surfaces as are likely to be damaged during the progress of the entire project.
- 4. Protective measures shall be performed in a manner satisfactory to the Architect.
- 5. Damaged masonry units shall be replaced to satisfaction of the Architect.
- 6. Exterior masonry walls shall be draped with waterproof covering until copings are in place, to prevent water penetration in cavity.

B. Clean-Up

- 1. Upon completion, all exposed masonry shall be thoroughly cleaned following recommendations of the BIA Technical Note No. 20. Before applying any cleaning agent to the entire wall, it shall be applied to a sample wall area of approximately 4' x 4' in a location approved by the Architect. No further cleaning work may proceed until the sample area has been approved by the Architect, after which time the same cleaning materials and method shall be used on the remaining wall area. If stiff brushes and water do not suffice, the surface shall be thoroughly saturated with clear water and then scrubbed with a solution of an approved detergent masonry cleaner, equal to "Vana Trol" made by ProSoCo Inc. or equal made by Diedrich or approved equal, mixed and applied as per manufacturer's directions, followed immediately by a thorough rinsing with clear water. All adjacent non-masonry surfaces shall be thoroughly protected during cleaning.

- a. Unless otherwise required by cleaning agent manufacturer use only low pressure device (30 to 50 psi) for application of cleaning agent and water rinsing.
- C. Pointing: Point any defective joint with mortar identical with that specified for that joint.

END OF SECTION

SECTION 044101 – NEW AND RECONSTRUCTED DRY-LAID STONE WALLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Salvaging of stone which has been dislodged from the existing historic dry-laid walls and using it to reconstruct in-kind.
2. Reconstructing historic dry-laid stone walls with salvaged stone and new as required.
3. Constructing new dry-laid walls, ha ha walls, and piers including single piece stone column stones.

1.2 RELATED REQUIREMENTS

A. Section 012200 “Unit Prices”

B. Section 044202 “Supported Dry-Laid Stone Planters” for Raised Dry Laid Stone Planters.

1.3 DEFINITIONS

- A. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and retain for reuse.
- B. Remove and Reinstall: Detach stone from existing historic walls, prepare for reuse, and reinstall as required to reconstruct walls to match existing.
- C. Existing to Remain: Existing portions of the wall that are not to be permanently removed and that are not otherwise indicated to be removed, and salvaged, or removed and reinstalled.

1.4 PRE-RECONSTRUCTION MEETING

A. Pre-stone wall construction Conference: Conduct conference at Project site.

1. Inspect and discuss the condition of the existing historic dry laid stone walls and the extent of the reconstruction.
2. Review salvage methods and any temporary storage requirements.
3. Review portions of the wall to be reconstructed and the methods for protecting adjacent existing wall sections.
4. Review locations for new dry-laid stone walls, ha ha walls, and piers to be built, including monolithic end stones
5. Required attendees:
 - a. Director’s Representative

- b. Landscape Architect
- c. Contractor's Project Manager
- d. Dry-Lay Stone Mason

1.5 SUBMITTALS

- A. Qualification Data: For Dry-Lay Stone Mason.
- B. Inventory: Submit a plan of areas requiring reconstruction and the extent that adjacent wall will need to be dismantled in order to complete the work.
- C. Work Plan: Submit the areas necessary for storage of any equipment/tools. Include any areas required for temporary stone storage, the routes designated for any necessary equipment to reach the Work.
- D. Photographs
 - 1. Submit high resolution digital photos before work begins of wall areas to be reconstructed.
 - 2. Submit high resolution digital photos showing the process of the work during the first segment of wall reconstructed for approval by the Director's Representative and the Landscape Architect before proceeding to the remainder of the work.
- E. Additional Stone: Should additional stone be required to complete the Work of reconstruction, submit stone to match existing in the range of sizes required.
- F. Stone for new walls and piers: submit stone to match existing in the range of sizes required.
- G. Warranties: Provide 1 year warranty to begin at final acceptance. Warranty to include labor and materials.

1.6 CLOSEOUT SUBMITTALS

- A. Inventory: Maintenance Manual for care of the stone walls.

1.7 QUALITY ASSURANCE

- A. Stone Mason Qualifications: Minimum of 10 years of dry-laid stone masonry similar to the work required for this project. Submit proof of experience, photos and owner contact information for 5 most recent projects with similar requirements or certification by the Dry-Stone Conservancy (www.drystone.org) as Qualified (Level 1) or above.
- B. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.
 - 1. Reconstructed Wall: Submit high resolution digital photographs of the reconstruction of the first section of the reconstructed wall showing all steps necessary to assess the work.

- Do not proceed until the work has been approved by the Director's Representative and Landscape Architect.
2. New Dry-Laid Stone Wall: Build mockup using new stone as approved by the Landscape Architect; full height and width with a minimum length of six feet.
 3. New Ha Ha Stone Wall: Build mockup using new stone as approved by the Landscape Architect; full height and width with a minimum length of six feet.
 4. Do not proceed with setting dry-laid stone walls until mockups are approved by the Landscape Architect.
 5. Protect accepted mockups from the elements with weather-resistant membrane.
 6. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Landscape Architect specifically approves such deviations in writing.
 7. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 FIELD CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by New York State as far as practical.
- B. Notify Director's Representative of discrepancies between existing conditions and Drawings before proceeding with selective work.
- C. Historic Fabric: The existing historic fabric that is to remain or be reinstalled is an integral part of the structure's historic significance. As such, the Contractor must use extreme care and exercise special caution to conserve, preserve, and protect the existing structure and its fabric.
 1. Contractor shall not use methods of removal or construction that will result in the loss of detail or material to the extant historic fabric not indicated to be removed.
 2. Contractor shall develop new methods and techniques where necessary to accomplish his goals of historic preservation.
 3. Contractor must provide supervision adequate for the protection of extant historic materials to remain whenever the Work is in progress. The Supervisor shall stop the Work if he observes Work underway that jeopardizes extant historic fabric that is to remain.
- D. Special Knowledge: Where the Specifications describe the need for a qualified individual, trade, or sub-contractor, a qualified individual, trade, or sub-contractor must be used. Where approval of qualifications is required, the specific individual who is approved must be onsite to do, or to supervise, the Work.
 1. Provide day-to-day supervision of the Work at all times while Work is underway.
 2. Contractor must ensure that any and all workers, craftspersons, and subcontractors are aware of the significance of the historic fabric. Contractor must ensure that all workers, craftspersons, and subcontractors are knowledgeable and experienced in their portion of the Work and know and understand the specified requirements and methods needed for performance of the Work.

- E. This is an historic site. All equipment and other materials shall be of sizes that allow for sufficient clearance of the site structures and walls to avoid any damage. The grounds are part of the historic designation. Work shall not damage plants or grades.
- F. Protect salvaged and new stones, and existing and new walls from staining and other damage.

PART 2 - PRODUCTS

2.1 STONE SOURCE

- A. Stones to be used in the reconstruction shall be the stones displaced from the existing wall.

2.2 ADDITIONAL NEW STONE MATERIAL

- A. If the salvaged stones are insufficient to complete the work of reconstruction and for new walls, local field stone from within 50 miles radius of the site shall be used.
- B. Stones must match the existing project stones in type, shapes, and colors.
- C. Stone for Single Piece Stone Columns to match existing gate posts at existing dry-laid wall in type, color, and finish.
- D. Provide samples of the stone being considered for use to the Landscape Architect for approval.

2.3 MISCELLANEOUS MATERIALS

- A. Historic walls. Salvaged stones that have fallen from the work; stones that are to be removed, salvaged, and reinstalled; and approved additional stone to match existing are the only materials allowed for the historic walls.
- B. New Stone Dry-Laid Walls, Piers, and Ha Ha Walls are to be built from new stone as indicated above.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and conditions with the Installer present.
- B. Surfaces and Conditions: Prior to installing stone, examine the existing surfaces and conditions to receive the stone and verify they are in accordance with the requirements and as shown on Drawings. Do not proceed until defective surfaces are brought into compliance.

3.2 SETTING

- A. Clean existing loose stone and stone bed of soil and vegetation before stacking stones.
- B. Sort stone before it is placed in wall. Remove stone that does not comply with requirements or that is unsuitable for intended use.
- C. Set stone to comply with requirements shown on Drawings and according to best practices for dry-lay stone in this setting. Set stone accurately in locations shown with edges and faces aligned according to established relationships.
- D. Set stones for reconstruction of walls to match the adjacent sections of the wall in stone variety, and general placement pattern.
- E. Set stones for new dry laid work to match nearest existing work in stone variety and general placement pattern.,

3.3 ADJUSTMENTS

- A. Remove and replace stone not matching final samples and mockups.
- B. Remove and replace stone not complying with requirements.
- C. Replace non-complying stone to match final samples and mockups, comply with specified requirements. Replacement stone shall show no evidence of replacement.

3.4 PROTECTION

- A. At the end of each day's work, cover top of walls with a nonstaining waterproof covering.
- B. Protect partially finished work when not being worked on.

3.5 CLEANING

- A. Clean area of any debris from the work and legally dispose off-site.
- B. Remove all protective coverings.

END OF SECTION 044101

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SECTION 044102 – RAISED STONE PLANTER

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes the planters made from cleft bluestone using dry lay techniques, supported by masonry appropriate construction adhesive.
- B. Related Requirements:
 - 1. Section 044101 “Reconstruct Historic Dry-Laid Walls” for general information related to dry-lay construction.
 - 2. Section 312000 “Earth Moving” for excavations for foundation and grading.
 - 3. Section 321400 “Unit Paving for adjacent paving.
 - 4. Section 329115 “Soil Preparation (Performance Specification” for planter soil.
 - 5. Section 329600 “Lawns & Grasses” for adjacent planted area
 - 6. Section 329300 “Exterior Plants” for plant material and installation in the planters.

1.2 PRE-RECONSTRUCTION MEETING

- A. Pre-reconstruction Conference: Conduct conference at Project site.
 - 1. Inspect and discuss the planter locations.
 - 2. Coordination with other work.
 - 3. Required attendees:
 - a. Director’s Representative
 - b. Contractor’s Project Manager
 - c. Dry-Lay Stone Mason

1.3 ACTION SUBMITTALS

- 1. Product Data: For each variety of stone, stone accessory, adhesive, and manufactured product.
- 2. Samples for Initial Selection:
 - a. For colored mortar, sealant, and other items involving color selection. Color to be selected by Landscape Architect from the full range of available colors.
 - b. For each type of stone product under consideration.
- 3. Samples for Verification
 - a. For each stone type indicated. Include at least four samples in each set, and show the full range of color and other visual characteristics in completed Work.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Dry-Lay Stone Mason.
- B. Work Plan: Submit the areas necessary for storage of any equipment/tools. Include any areas required for temporary stone storage, the routes designated for any necessary equipment to reach the Work.
- C. Stone: Submit stone to match existing for color range.
- D. Warranties: Provide 1 year warranty to begin at final acceptance. Warranty to include labor and materials.

1.5 CLOSEOUT SUBMITTALS

- A. Inventory: Maintenance Manual for care of the stone planters.

1.6 QUALITY ASSURANCE

- A. Stone Mason Qualifications: Minimum of 10 years of dry-laid stone masonry similar to the work required for this project. Submit proof of experience, photos and owner contact information for 5 most recent projects with similar requirements or certification by the Dry-Stone Conservancy (www.drystone.org) as Qualified (Level 1) or above.
- B. Mockup: Build mockup to demonstrate aesthetic effects and to set quality standards for materials and execution.
 - 1. Build mockup of the stone planter on approved stone base.
 - 2. Include one corner section; full height; a minimum of 3 feet on each side of the corner.
 - 3. Do not proceed with planter construction until mockup is approved by the Director's Representative.
 - 4. Protect accepted mockups from the elements with weather-resistant membrane.
 - 5. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in the mockup unless Landscape Architect specifically approves such deviations in writing.
 - 6. Subject to compliance with requirements, approved mockups may become part of the completed Work if undistributed at time of Substantial Completion.

1.7 PRECONSTRUCTION TESTING

- A. Preconstruction Adhesion Testing: Submit confirmation from masonry construction adhesion manufacturers of compatibility and adhesion with approved bluestone.

1.8 FIELD CONDITIONS

- A. Special Knowledge: Where the Specifications describe the need for a qualified individual, trade, or sub-contractor, a qualified individual, trade, or sub-contractor must be used. Where approval

of qualifications is required, the specific individual who is approved must be onsite to do, or to supervise, the Work.

1. Provide day-to-day English-speaking supervision of the Work at all times.
2. Contractor must ensure that any and all workers, crafts persons, and subcontractors are aware of the significance of the historic fabric. Contractor must ensure that all workers, crafts persons, and subcontractors are knowledgeable and experienced in their portion of the Work and know and understand the specified requirements and methods needed for performance of the Work.

- B. This is an historic site. All equipment and other materials shall be of sizes that allow for sufficient clearance of the site structures and walls to avoid any damage. The grounds are part of the historic designation. Work shall not damage plants, grades, other landscape features that are part of the finished Work.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle materials to prevent deterioration or damage.
1. Stone shall be carefully packed and loaded for shipment using reasonable care and customary precautions against damage in transit. Material which may cause staining or discoloration shall not be used for blocking or packing.
 2. The stone shall be stacked on timber or platforms at least 4 inches above the ground. Care shall be taken to prevent staining or discoloration during storage.
 3. If storage is to be for a prolonged period, polyethylene or other suitable plastic film shall be placed between wood and finished surfaces of completely dry stone.

PART 2 - PRODUCTS

1.2 MANUFACTURERS

- A. Source Limitations: Obtain each type of stone, and setting material from single source with resources to provide materials and products of consistent quality in appearance and physical properties to match existing cleaned salvaged stone,.

1.3 BLUESTONE UNITS

- A. Bluestone: Rectangular paving slabs in a variety of sizes made from quartz-based stone complying with ASTM C616/C616M, Classification
1. Stone Abrasion Resistance: Minimum value of 8, based on testing according to ASTM C241/C241M or ASTM C1353.
 2. Finish: Natural cleft. To match cleaned salvaged bluestone from project.
 3. Match Cleaned salvaged bluestone for color, finish, and other stone characteristics relating to aesthetic effects.
 4. Thickness: Not less than 2 inches (51 mm) or as indicated on the drawings.
 5. Face Size: As indicated.

2.1 MISCELLANEOUS MATERIALS

A. Aggregate Setting-Bed Materials

1. Graded Aggregate for Subbase: Sound, crushed stone or gravel complying with ASTM D448 for Size No. 57.

B. Masonry Construction Adhesive

1. Provide Prosoco “Adhesive” or approved equal.
2. Cured Properties:
 - a. Hardness, Shore A: 40-5-
 - b. Tensile Strength >150 psi
 - c. Elongation at Break: >200% (ASTM D412)
 - d. Non-corrosive

C. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability:
 - a. As follows:
 - 1) Grab Tensile Strength: 247 lbf (1100 N); ASTM D4632.
 - 2) Sewn Seam Strength: 222 lbf (990 N); ASTM D4632.
 - 3) Tear Strength: 90 lbf (400 N); ASTM D4533.
 - 4) Puncture Strength: 90 lbf (400 N); ASTM D4833.
2. Apparent Opening Size: No. 60 (0.250-mm) sieve, maximum; ASTM D4751.
3. Permittivity: 0.02 per second, minimum; ASTM D4491.
4. UV Stability: 50 percent after 500 hours' exposure; ASTM D4355.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and conditions with the Installer present.
- B. Surfaces and Conditions: Prior to installing stone, examine the existing surfaces and conditions to receive the stone and verify they are in accordance with the requirements and as shown on Drawings. Do not proceed until defective surfaces are brought into compliance.

3.2 BASE AGGREGATE

- A. Refer to Civil.

3.3 SETTING STONES FOR PLANTER WALLS

- A. Sort stone before it is used in planter walls. Remove stone that does not comply with requirements or that is unsuitable for intended use.
- B. Select stones to create a full distribution of size, color, and texture reflected in the approved mockup.
- C. Set stone to comply with requirements shown on Drawings, approved mockups and according to best practices for dry-lay stone in this setting. Set stone accurately in locations shown with edges and faces aligned according to established relationships.
- D. Set stones to create a plumb outer face.

3.4 ADJUSTMENTS

- A. Remove and replace stone not matching final samples and mockups as determined by the Director's Representative and the Landscape Architect.
- B. Remove and replace stone not complying with requirements.
- C. Replace non-complying stone to match final samples and mockups, comply with specified requirements. Replacement stone shall show no evidence of replacement.

3.5 PROTECTION

- A. At the end of each day's work, cover top of planter walls with a nonstaining waterproof covering.
- B. Protect partially finished work when not being worked on.

3.6 CLEANING

- A. Clean area of any debris from the work and legally dispose of offsite.
- B. Remove all protective coverings.

END OF SECTION 044102

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SECTION 047201 - CAST STONE FOUNTAIN

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Reproducing elements of existing historic fountain not previously replicated and indicated on the drawings to be reconstructed.
2. Reconstructing the fountain using new and existing cast stone elements.

B. Related Requirements:

1. Plumbing specifications and drawings related to fountain and pump connections.
2. Section 329600 "Exterior Plants" for surrounding planting areas

1.2 SUBMITTALS

A. Product Data: For each type of product, including but not limited to:

1. For cast stone units, include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
2. Mortar
3. Waterproofing

B. Provide description of casting and finishing processes.

C. Shop Drawings: Show fabrication and installation details for cast stone units. Include dimensions, connections to existing fountain parts, details of reinforcement and anchorages if any, and indication of finished faces.

D. Samples for Initial Selection: For colored mortar.

E. Samples for Verification:

1. For each color and finish of cast stone required, 4 inches (100 mm) square in size.
2. For colored mortar, make Samples using same sand and mortar ingredients to be used on Project. Label Samples to indicate types and amounts of pigments used

F. Qualification Data: For fabricator and testing agency.

1. Include copies of material test reports, indicating compliance of cast stone with ASTM C1364.

G. Fabricator's written instructions for the assemblage and installation of the fountain for approval and coordination purposes.

1.3 QUALITY ASSURANCE

- A. **Manufacturer Qualifications:** A qualified manufacturer of historic cast stone reproduction units similar to those indicated for this Project, that has sufficient production capacity to manufacture required units.
- B. **Mockup:** Build mockup to verify selections made under Sample submittals, to demonstrate aesthetic effects and to set quality standards for materials and execution.
 - 1. Provide two sample pieces of finished cast stone with mortar join and waterproofing applied.
 - 2. Approved mockup shall be kept on site and protected until the Work of the Fountain is completed and approved by the Landscape Architect and the Director's Representative.

1.4 COORDINATION

- A. Coordinate with the plumbing for the connections, adjacent paving and planting.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Coordinate delivery of cast stone to avoid delaying the Work and to minimize the need for on-site storage.
- B. Pack, handle, and ship cast stone units in suitable packs or pallets.
 - 1. Lift with wide-belt slings; do not use wire rope or ropes that might cause staining or mar the finish in any way. Move cast stone units if required, using dollies with wood supports.
 - 2. Store cast stone units on wood skids or pallets with nonstaining, waterproof covers, securely tied. Arrange to distribute weight evenly and to prevent damage to units. Ventilate under covers to prevent condensation.
- C. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- D. Store mortar aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

1.6 PROJECT CONDITIONS

- A. **Cold-Weather Requirements:** Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Comply with cold-weather construction requirements in TMS 602.
 - 1. **Cold-Weather Cleaning:** Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until cast stone has dried, but no fewer than seven days after completing cleaning.
- B. **Hot-Weather Requirements:** Comply with hot-weather construction requirements in TMS 602.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Cast Stone: Obtain cast stone units from single source from single manufacturer.
 - 1. Cast Stone units must match the existing replica units which will be provided to the Contractor by John Jay Homestead. The Work of this specification taken together with these existing pieces must provide a seamless whole to match the historic fountain.
- B. Obtain cast stone units from French Fountains (a division of French Casting) who made the upper basin and column for the fountain and have the mold necessary for the pedestal piece; or approved equal.
 - 1. Contact Information:
French Fountains
8-25 St. Charles Avenue
New Orleans, LA 70118
Phone: 504-219-7060
Fax: 504-309-0164
URL: <http://frenchfountains.com/>
- C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color, from one manufacturer for each cementitious component and from one source or producer for each aggregate.

2.2 CAST STONE MATERIALS

- A. General: Comply with ASTM C1364.
- B. Cast fountain using limestone and portland cement mixture.
- C. Portland Cement: ASTM C150/C150M, Type I or Type III, containing not more than 0.60 percent total alkali when tested according to ASTM C114. Provide natural color or white cement as required to produce cast stone color indicated.
- D. Aggregates: Natural, white, pea sized limestone with rounded edges limestone.
- E. Reinforcement: Refer to Structural.
 - 1. Comply with approved shop drawings.

2.3 CAST STONE UNITS

- A. Cast Stone Units: Comply with ASTM C1364.
 - 1. Fountain Units are manufactured using the manufacturer's selected method to match existing historic replica pieces.

- B. Fabricate units with sharp arris and accurately reproduced details, with indicated texture on all exposed surfaces unless otherwise indicated.
 - 1. Slope exposed horizontal surfaces 1:12 to drain unless otherwise indicated.
- C. Curing the units
 - 1. Cure units until the stone turns white.
 - 2. Cure units in enclosed, moist curing room at 95 percent relative humidity and temperature of 100 deg F (38 deg C) for 12 hours or 70 deg F (21 deg C) for 16 hours.
 - 3. Keep units damp and continue curing to comply with one of the following:
 - a. No fewer than five days at mean daily temperature of 70 deg F (21 deg C) or above.
 - b. No fewer than seven days at mean daily temperature of 50 deg F (10 deg C) or above.
- D. First Acid Wash: After curing, acid wash units with onyx acid wash
- E. Second Acid Wash: When dry, spray pure muriatic acid over the onyx acid finish to create an antique white distressed finish to match the existing upper basin and column stored at the John Jay Homestead.
- F. Colors and Textures: Match existing replica units that are in the possession of the John Jay House.

2.4 MORTAR MATERIALS

- A. Provide mortar as recommended in writing by the fabricator of the fountain pieces.
 - 1. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
 - 2. White Masonry Sand.
- B. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in masonry mortar for fountain assemblage.
 - 1. Aggregate for Mortar: For joints less than 1/4 inch (6 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
 - 2. White-Mortar Aggregates: Natural white sand or crushed white stone.
- C. Water: Potable.

2.5 ACCESSORIES

- A. Reinforcement: See Structural and Fabricators written instructions.

- B. Plumbing and Electrical Connections: Refer to Plumbing and Electrical specifications and drawings.
- C. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cast stone manufacturer and expressly approved by cleaner manufacturer for use on cast stone and adjacent masonry materials.
- D. Waterproofing
 - 1. As recommended by the fabricator in writing.
 - 2. Waterproof for finished product must be compatible with the cast stone and mortar materials.
 - 3. Waterproofing should not result in any alteration to the color and finish of the cast stone.

EXECUTION

2.6 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

2.7 SETTING CAST STONE IN MORTAR

- A. Set cast stone as indicated in TMS 604 unless directed otherwise by the Cast Stone fabricator..
- B. Set cast stone as indicated on Drawings. Set units accurately in locations indicated, with edges and faces aligned according to established relationships and indicated tolerances.
- C. Wet joint surfaces thoroughly before applying mortar or setting in mortar.
- D. Set units in full bed of mortar with full head joints unless otherwise indicated.
 - 1. Set units with joints as recommended by the fabricator.
- E. Rake out joints for pointing with mortar to depths of not less than 3/4 inch (19 mm). Rake joints to uniform depths with square bottoms and clean sides. Scrub faces of units to remove excess mortar as joints are raked.
- F. Point mortar joints by placing and compacting mortar in layers not greater than 3/8 inch (10 mm). Compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
- G. Tool exposed joints slightly concave when thumbprint hard. Use a smooth plastic jointer larger than joint thickness.

2.8 INSTALLATION TOLERANCES

- A. Variation from Plumb for fountain pieces: Do not exceed 1/4 inch in 10 ft. (6 mm) in 3 m maximum.
- B. Variation from Level: Do not exceed 1/4 inch in 10 ft. (6 mm in 3 mm) maximum.
- C. Variation in Joint Width: Do not vary joint thickness more than 1/8 inch in 36 inches (3 mm in 900 mm) or one-fourth of nominal joint width, whichever is less.

2.9 ADJUSTING AND CLEANING

- A. Remove and replace stained and otherwise damaged units and units not matching approved Samples. Cast stone may be repaired if methods and results are approved by the Director's Representative and Landscape Architect.
- B. Replace units in a manner that results in cast stone matching approved Samples, complying with other requirements, and showing no evidence of replacement.
- C. In-Progress Cleaning: Clean cast stone as work progresses.
 - 1. Remove mortar fins and smears before tooling joints.
 - 2. Remove excess sealant immediately, including spills, smears, and spatter.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed cast stone as follows unless otherwise indicated by the fabricator:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample; leave one sample uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of cast stone.
 - 3. Protect adjacent surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 - 4. Wet surfaces with water before applying cleaners; remove cleaners promptly by rinsing thoroughly with clear water.
 - 5. Clean cast stone by methods described in Cast Stone Institute Technical Bulletin #39.

2.10 WATERPROOFING

- A. Use water repellent coating as recommended in writing by the fabricator, approved by the Landscape Architect as part of the submittal and mockup process.
- B. The application should be guaranteed by the water repellent manufacturer or the applicator not to discolor the cast stone.

END OF SECTION 047200

SECTION 050300 – RESTORATION TREATMENTS FOR HISTORIC METALS

PART 1 GENERAL

1.1 DESCRIPTION

- A. John Jay Homestead is a National Historic Landmark, on the National Register of Historic Places and in the New York State Register of Historic Places.
- B. The historical and architectural significance of the building require particular care when intervening with existing fabric to ensure restoration work and the construction of new interventions are of appropriate quality and undertaken with appropriate care for the historic fabric.
- C. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Contractor shall provide all labor, materials, equipment and services required to complete the work as shown on drawings, as described in this section, and as may be required by conditions and authorities.
- B. Metal Restoration Contractor to provide all selective removals and dismantling of existing historic metal elements included in this scope of work (e.g. dismantling, cuts, etc.) as needed for installation of new devices, lighting, etc. by others. Provide all needed repairs at historic metal elements following the methods described in this section after new installations are complete. Subject to review and acceptance by Client, Preservation Architect, and Construction Manager. General Contractor to coordinate the work of all relevant trades.
- C. Prior to starting the work - Contractor shall survey all areas where existing historic metalwork in the scope of work that is shown to remain, in order to verify extent and locations of needed repairs, and confirm estimated quantities shown on the drawings. Results of the Contractor's survey shall be clearly communicated to Client, Architect and Construction Manager and form part of the Metal Restoration Quality Control Plan. See 1.5, F.
- D. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the decorative metal restoration work as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:
 - 1. Cleaning of existing metal elements without removing existing coatings.
 - 2. Stripping existing metal elements to remove all coatings.

3. Refinishing bare metal with oxidizing/conversion treatment and clear coat finish.
 4. Refinishing painted metal with new painted finish.
 5. Repairing and replacing damaged and missing elements with new metal elements.
 6. Reconnecting metal elements where connections have failed.
 7. Providing new blocking for reinstallation of historic metals, as needed.
- E. Historic decorative metal elements at Bedford House include (but are not limited to):
1. Painted metal elements to be stripped, prepped and receive new painted finish:
 - a. Existing ornamental bronze grilles and registers to existing air ducts.
 - b. New louvered aluminum grilles and registers to existing air ducts.
 - c. Existing metal shutter dogs and hinges at shutters.
 - d. Existing bronze hinges at storm windows
 - e. Existing mild steel stair pickets at railing of Main Stair in Rear Halls 105 and 206.
 - f. Existing iron oven doors and lintels at fireplaces.
 - g. Existing iron and mild steel door hardware.
 2. Existing metal elements to be stripped, prepped and receive new oxidizing/conversion treatment in a light statuary color and clear coat finish:
 - a. Bronze and brass ornamental door hardware.
 - b. Bronze and brass ornamental window hardware.
 - c. Bronze hinges at existing cabinets in Room 106.
 3. New metal elements to be prepped and receive new oxidizing/conversion coating in a light statuary color and clear coat finish:
 - a. New ornamental bronze grilles to existing air ducts.
 - b. New brass/bronze railings.
 4. Cleaning of existing metal elements without removing existing coatings.
 - a. Brass lock escutcheons at existing cabinets in Room 106.
 - b. Miscellaneous clear-coated bronze/brass elements.

1.3 RELATED SECTIONS

A. Historical Treatment Procedures – Section **013591**

- B. Removal and Salvage of Historic Construction Materials – Section **020342**
- C. Restoration Treatments for Historic Masonry – Section **040300**
- D. Restoration Treatment for Historic Woodwork – Section **060312**
- E. Restoration Treatment for Historic Plaster – Section **090120**
- F. Painting and Finishing – Section **099000**

1.4 DEFINITIONS

- A. For construction definitions as related to metal, refer to ASTM A 48.

1.5 QUALITY ASSURANCE:

- A. Historic Treatment Specialist Qualifications: A firm or company specializing in historic decorative metal restoration with a minimum of ten (10) years of documented experience. Qualified companies must present examples of completed work on at least five (5) projects similar in material, design, and extent to that indicated for this Project, whose work has resulted in historic treatment of historic ornamental metal with a record of successful in-service performance. A firm or individual experienced in installing and finishing new decorative metalwork is insufficient experience for historic ornamental metal treatment work.
 - 1. The Contractor shall hold and provide evidence of current RRP certification of Trained & Certified EPA Lead Renovator and previous experience in removal of lead-based paint from exterior and interior wood surfaces.
 - 2. Field Supervision:
 - a. The Contractor shall maintain a full-time foreman/supervisor who shall be present on site or in the shop daily at all times that historic treatment of ornamental metal is in progress.
 - b. The Contractor shall maintain a steady work crew consisting of skilled craftsmen who are experienced with the materials and methods specified and familiar with the design requirements.
 - 1). Metalwork and repairs shall be executed by skilled persons thoroughly trained and familiar with the methods required.
 - 2). The Contractor shall confirm that all workers under their direction fully understand the requirements of the job.
 - c. Contractor shall notify Architect before beginning work. Obtain the Architect's approval of the installation of restored metalwork before proceeding with the work.

- B. Bidders must visit the site beforehand and make themselves thoroughly familiar with specific conditions relating to this Section.
- C. All painting and paint removal work shall be done by a Trained and Certified EPA Lead Renovator holding an active RRP Certification.
- D. Chemical Cleaner Manufacturer Qualifications: A firm regularly engaged in producing metal cleaners tested-on and suitable-for historic copper alloys, that have been used for similar applications with successful results, and with factory-trained representatives who are available for consultation and project site inspection and assistance at no additional cost.
- E. Comply with relevant ASTM Standards and National Association of Architectural Metal Manufacturers (NAAMM) guidelines.
- F. Metal Restoration Quality Control Plan: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of the historic treatment work, including protection of surrounding materials and Project site.
 - 1. Description protection of surrounding construction and landscaping.
 - 2. Annotated repair elevations showing confirmed locations and extent of repairs for Architect approval prior to starting any repair work.
 - 3. Description of sequencing, work procedures, materials, and tools proposed for each conservation treatment.
 - a. Include effects of weather variations on sequencing of treatments, construction schedule, and protection of completed work.
 - 4. Description of proposed repair materials to match existing and a description of their compatibility with historic materials.
 - 5. If materials and methods other than those indicated are proposed for any phase of historic treatment work, add to the quality-control program a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project.
- G. Pre-mockup Testing:
 - 1. Prior to providing mockups, the Contractor shall test to determine existing substrate, cleaning methods and refinishing methods on representative metal elements of each type for compliance with specified requirements and as directed by Architect. Provide proposed materials and methods for approval prior to testing. Requirements include but are not limited to:
 - a. At metals where existing coatings are to remain – provide pre-mockup paint removal test samples to determine type of coating present. After existing coating is confirmed, communicate findings to Architect and submit for review proposed new coatings

developed by the manufacturer to be fully compatible with existing coating to remain. Provide proposed materials and methods for approval.

- b. At metals where existing coatings are to be removed – provide pre-mockup test samples to determine the type of solvent or paint stripper that will be most efficient at removing the coating but least aggressive on the base metal. Provide proposed materials and methods for approval.
 - c. At metals to receive new oxidizing/conversion treatment statuary coatings - provide pre-mockup test samples on all types of bronze/brass elements to receive oxidation/conversion treatment statuary finish to determine the color combination and ratio of proposed products at each of the bronze types in order to achieve an exact color match and antique pattern across all of them. Provide proposed materials and methods for approval.
Oxidation/conversion treatment at new and existing bronze/brass elements shall all match in color, pattern, etc. The color of oxidation/conversion treatment may vary across the different bronze elements due to their unique alloy composition.
 - d. At bare metals to be cleaned – provide pre-mockup test samples to determine type of cleaner that will be most effective but least deleterious to bare metal surface. Contractor to Select sizes and configurations of existing work to adequately demonstrate capability of metal cleaning. Provide proposed materials and methods for approval.
2. Notify Architect seven days in advance of the dates and times when testing will be performed.
- H. Grades of Metals: Materials and alloys of existing metal components is unknown. When a precise grade or alloy of metal is not specified, the Contractor shall obtain the metal from a specialist supplier or fabricator who shall be informed of the existing material being matched and the particular application of the metal in the works. It shall be the Contractor's responsibility to use the correct material suited to its application in the works.
- I. Source of Materials: Obtain materials for wood restoration from a single source for each type of material required to ensure a match in quality, color and texture.
- J. Visual Requirements: Restoration work shall match existing decorative metal work, including materials, shape and size, finish and accepted sample installations. Contractor shall be responsible for means and methods to meet local code and project conditions to achieve the desired finish and fulfil performance requirements.
- K. Where items are being fabricated or restored off-site, Contractor to provide an opportunity for inspection of the quality and progress of the work in the shop. Subject to review and approval by the Client, Architect and Construction Manager.

The Contractor shall replace all broken, lost and damaged materials resulting from repair, removal, transportation, cleaning or storing at no expense to the Owner and to the satisfaction of the Architect.

1.6 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Convene a pre-installation conference to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.
1. Review minutes of Preliminary Historic Treatment Conference that pertain to historic treatment of decorative metal.
 2. Review methods and procedures related to historic decorative metal repair including, but not limited to, the following:
 - a. Historic treatment specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Materials, material application, sequencing, tolerances, and required clearances.
 - c. Conditions survey method and list of conditions to be surveyed.
 - d. Fire-protection plan.
 - e. Decorative metal historic treatment program.
 - f. Coordination with building occupants.

1.7 SUBMITTALS

- A. Product Data: Provide recommendations for product type, application and use. Submit manufacturer's product specifications and installation instructions for each type of product specified, including data showing compliance with requirements. Each product data submittal shall be clearly labeled by the Contractor to indicate the location and purpose each product is intended for. Unlabeled product data sheets shall not be acceptable.
- B. Qualification Data: For historic treatment specialist.
- C. Evaluation Reports: for post-installed structural anchors, from ICC-ES.
- D. Testing Methodology and Program: Include protection of surrounding materials. Describe in detail metal elements to be tested including their location with reference to the Contract Drawings. Describe in detail the testing methodology, materials, methods, equipment and sequence of operations.

- E. Historic Treatment Program: Include protection of all surrounding materials on the building and Project site during operations. Describe in detail the testing methodology, materials, methods, equipment, and sequence of operations to be used for each phase of the historic treatment work.
1. If alternative materials and methods to those indicated are proposed for any phase of historic treatment work, provide a written description, including evidence of successful use on other comparable projects, and a testing program to demonstrate their effectiveness for this Project.
 2. Sequencing and Scheduling: Submit sequence and scheduling of ornamental metal work.
- F. Schedule: Submit schedule for removal and reinstallation.
- G. Photographs: Submit photographs of each element in place prior to removal.
- H. Samples for Initial Selection: For the following:
1. Each type of decorative metal item and component with applied finishes.
 2. Sealant materials.
 3. Accessories to verify color selection.
- I. Shop Drawings:
1. Submit shop drawings for each existing or new metal element showing all repairs, modifications, new assemblies, new reattachment systems, fasteners. Include plans, sections and elevations locations and extent of replication work, with enlarged details of replacement parts indicating materials, profiles, methods of attachment, accessory items, and finishes.
 2. Contractor shall be responsible for means and methods to meet local code and project conditions to achieve the desired finish and fulfil performance requirements.
 3. Field Measurements: Take detailed field measurements prior to the preparation of shop drawings and commencement of dismantling and fabrication of work.
 - a. Tag, photograph and record the location of each element to be dismantled so that it can be stored and/or reinstalled to original locations at a later date.
 4. Include field-verified dimensions of replication work and the following:
 - a. Full-size patterns with complete dimensions for new decorative metal items and their jointing, showing relation of existing to new items.
 - b. Templates and directions for installing anchor bolts and other anchorages.

- c. Identification of each new metal item and component and its location on the structure in annotated plans and elevations.
 - d. Provisions for expansion, weep holes, and conduits as required for each location and exposure.
 - e. Provisions for sealant joints if required.
- J. Samples: Submit samples for verifications of materials, dimensions, profiles and application, including the following:
 - 1. Each type of new material to be used for replacing existing or missing decorative elements.
 - 2. Each type of repair for each element.
 - 3. Epoxy filler.
 - 4. Isolation and sealant materials.
 - 5. Each type of fastener, anchors, supports, connection components, fittings and brackets.
- K. Maintenance Data: For finishes to include in maintenance manuals.
- L. Mockups:
 - 1. Based on approved testing, Contractor shall prepare mockups one of each type of treatment for each condition observed in the Project to demonstrate historic treatment methods, corrosion removal procedures, desired color, aesthetic effects and qualities of materials, tools used and execution. Prepare mockups so they are inconspicuous or reversible.
 - a. Locate mockups on the building where directed by Architect.
 - b. Adjust and resubmit mockups until approved by Client, Architect and Construction Manager.
 - 2. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work by the Client, Architect, and Construction Manager.
 - 3. Obtain Architect's written approval of mockups before starting the remainder of metal restoration and any applicable paint removal.

1.8 PROJECT CONDITIONS

- A. Concealed and undocumented historic items, relics, and similar objects encountered during historic treatment remain Owner's property.
 - 1. Coordinate with Owner who will establish special procedures for treatment of concealed historic items encountered during Project work.

1.9 DELIVERY STORAGE AND HANDLING:

- A. Deliver material to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of product(s).
- B. Rejected or unapproved products shall be promptly removed from the work site after mockups are complete.
- C. Carefully pack and store disassembled metal components in designated areas prior to shipment from site. Unload, handle and store to prevent breakage.
- D. Protect all metal components during storage prior to and after repairs from wetting by rain, snow or ground water, and from vandalism or theft.
- E. Provide Architect access to all work locations on site and to the metal workshops for confirmation of the Repair Schedule and continued review throughout the work.
- F. Comply with manufacturer's technical requirements for temperature and relative humidity.
- G. Light Levels: Provide a minimum of 60 foot-candles of even light at the work surface for metal restoration cleaning, repairs, and installation. Provide a minimum of two light sources at the location of each individual cleaning, repair and installation area to minimize shadows. Reposition lights as often as required to maximize visibility.

1.10 PROTECTION

- A. The Contractor shall make all necessary precautions to protect the building, surrounding materials, building occupants, etc. from the work being performed, including coming in contact with harmful materials, rinse water, or fumes/odors from metal restoration operations. It is the Contractor's responsibility to ensure that protective measures are in place and are adequate for the work being performed. Contractor shall repair or replace any items damaged in the course of the work at no extra cost to the Owner and to the approval of the Construction Manager.
- B. All containers at job site shall be properly labeled indicating contents.
- C. Prevent cleaners or coatings used during the repair work from staining face of surrounding masonry and other surfaces. Immediately remove any spills or splashes in contact with exposed masonry and other surfaces.
- D. During the period of metal restoration, protect all exposed areas from penetration by the elements at the end of every day's work.
- E. Maintain at job site, in a loose-leaf binder, Safety Data Sheets for all materials used.
- F. It is the Contractor's responsibility that all working conditions and procedures conform to OSHA and general industry standards. Proper safety procedures shall follow all local, state and

federal regulations. Appropriate personal safety equipment should be utilized when necessary, including properly fitting respirators fitted with appropriate filters, eye protection and gloves.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Metals: Provide metals made of the alloys, forms, and types that match existing metals and have the ability to receive finishes matching existing finishes unless otherwise indicated. Provide metal components which are free of surface blemishes and pitting where exposed to view. Exposed-to-view surfaces exhibiting imperfections inconsistent with existing materials are unacceptable.
- B. Source Limitation for Replacement Cast Materials: Obtain castings for historic treatment of decorative metal from single source from single manufacturer with resources to provide materials of consistent quality in appearance and physical properties.
- C. Miscellaneous Materials:
 - 1. Shims: Plastic or nylon.
 - 2. Identification Tags
- D. Cleaning Materials: The following materials are listed as a beginning point to aid the Contractor in preparing initial test samples. The choice of products and/or custom formulations to be used is subject to approval of samples and mockups during Submittals.
 - 1. Surfactant: A non-ionic surface-active agent composed of an anhydrous mixture of alkylaryl polyether alcohols.
 - a. Zyfo Cleaner Concentrate by Envirotex or approved equal. Zyfo Cleaner Concentrate is available from Industrial Soap Company, (314) 241-6363.
 - b. Triton X-100 by Rohm and Hass Company, or approved equal. Triton X-100 is available from Fisher Scientific Company, 201/796-7100; J.T. Baker Chemical Co., 201/859-2151; and various photographic supply stores.
 - c. Or approved equal.
 - 2. Ethanol: Industrial grade, denatured ethanol.
 - 3. Water: Clean, potable, free of acids and other deleterious substances.
 - 4. A 5% oxalic acid solution in a mixture of three parts water and one-part butyl cellosolve.
 - 5. Fine India pumice powder (0, ½) (or as needed)

6. Brushes: Medium stiffness nylon bristle, natural bristle, or stiff animal hair brushes selected for maximum cleaning efficiency but with least potential for surface injury to material being cleaned. Metal brushes of any kind shall not be acceptable.
- E. Brass Polish: Appropriate manufacturer's polish recommended by the International Copper Research Association, 208 Third Avenue, New York, NY 10017, 212/697-9355. Products to test include but may not be limited to:
1. Noxon 7 Metal Polish Cleaner as manufactured by Reckitt Benckiser North America, Inc.
 2. Brasso Metal Polish as manufactured by Reckitt Benckiser North America, Inc.
 3. Or approved equal
- F. Stripper for existing clear coats: The following materials are listed as a beginning point to aid the Contractor in preparing initial samples. The choice of products and/or custom formulations to be used is subject to approval of test area samples and mockups during Submittals.
- a. Acetone
 - b. Prosoco Fast Acting Stripper
 - c. Cathedral Stone Heavy Duty Paint Remover
 - d. Any stripper specially formulated for removing high-performance clear coatings from bronze as recommended by the International Copper Research Association, 208 Third Avenue, New York, NY 10017, (212) 697-9355.
 - e. Or approved equal.
- G. High-performance clear coat: Clear, non-yellowing methacrylate lacquer, acrylic resin acryloid-based coating, or acrylic polyurethane of type recommended by the International Copper Research Association for the protection of finished metal surface. Provide satin clear or matte clear finish as determined by testing and mockups. Clear coats to test includes:
1. Incralac as manufactured by StanChem, Inc. 401 Berlin Street East Berlin, CT 06023. (806) 828-0571.
 2. Matthews Clearcoats as manufactured by Matthews Paint, 760 Pittsburg Drive Delaware, OH 43015. (800) 323-6593
 3. Sherwin Williams Waterbased Acrolon 100 Waterbased Urethane
*Part A: B65T00724 **Clear** + Part B: B65V00720 Hardener*
 4. Or approved equal.
- H. Miscellaneous materials:

1. Metal-Patching Compound: Two-part, epoxy- or polyester-resin, metal-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of metal repair indicated, tooling time required for the detail of work, and site conditions. Compound shall be produced for filling metal that has deteriorated because of corrosion or deformation. Filler shall be capable of filling deep holes and spreading to feather edge.
2. Scouring pads such as 3M Scotch-Brite or as recommended by the International Copper Research Association, 208 Third Avenue, New York, NY 10017, 212/697-9355
3. Non-shrink, Non-metallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended in writing by manufacturer for interior and exterior applications.
4. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.
 - a. Water-Resistant Product: At exterior locations, provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer for exterior use.
5. Sealant Materials: Provide manufacturer's standard, elastomeric non-staining, single-component, non-sag silicone sealant complying with applicable requirements in Section 079200 "Joint Sealants."
 - a. Colors: Provide colors of exposed sealants to match colors of metals in which sealant is placed unless otherwise indicated.
6. Antirust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer according to MPI #23 (surface tolerant, anticorrosive metal primer) or SSPC-Paint 20 or SSPC-Paint 29.
 - a. Surface Preparation: Use coating requiring no better than SSPC-SP 3, "Power Tool Cleaning" surface preparation according to manufacturer's literature or certified statement.
7. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
8. Liquid Strippable Masking Agent: Manufacturer's standard liquid, film-forming, strippable masking material for protecting glass, metal, glazed masonry, and polished stone surfaces from damaging effects of acidic and alkaline cleaners.
9. Masking Tape: Nonstaining, nonabsorbent material; compatible with chemical solutions being used and substrate surfaces, and that will easily come off entirely, including adhesive
10. Microfiber cloths

11. Cotton rags
12. Vacuum
13. Bronze Patinizer (oxidation/conversion treatment): Appropriate solution of sodium sulfide (liquid sulfur) to produce a protective film of copper sulfide or as needed to create the approved statuary finish. Final solution shall comply with all recommendations of the International Copper Research Association.

2.2 FASTENERS

- A. Fasteners: Fasteners of the same basic metal as fastened metal unless otherwise indicated. Use metals that are noncorrosive and compatible with each metal joined.
 1. Match existing fasteners in material and in type of fastener unless otherwise indicated.
 2. Use concealed fasteners for interconnecting decorative metal components and for attaching them to other work unless exposed fasteners are unavoidable or the existing fastening method.
 3. For exposed fasteners, use Phillips-type machine screws of head profile flush with metal surface unless otherwise indicated or another head is required to match the existing fastening method as determined by Architect.
 4. Finish heads of exposed fasteners to match finish of metal fastened unless otherwise indicated.

2.3 METAL FABRICATION

- A. Fabricate decorative metal items and components in sizes and profiles to match existing decorative metal, with accurate curves, lines, and angles. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
- B. Provide uniform, neat seams with minimum exposure of welds, brazing, solder, and sealant.
- C. Provide rebates, lugs, and brackets necessary to assemble components and to attach to existing work. Drill and tap for fasteners. Use concealed fasteners where possible; use exposed fasteners to match existing work.
- D. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed joints of flux, and dress exposed and contact surfaces.
 1. Use materials and methods that match color of base metal, minimize distortion, and develop maximum strength and corrosion resistance.
 2. Remove flux immediately.

3. At exposed connections, match contours of adjoining surfaces, and finish exposed surfaces smooth and blended so no roughness shows after finishing.
- E. Castings: Fabricate castings free of warp, cracks, blowholes, or other defects that impair strength or appearance. Grind, wire brush, sandblast, and buff castings to remove seams, gate marks, casting flash, and other casting marks.
 1. Finish castings to match existing decorative metalwork.
 2. Replacement Casting for Handrail Bracket: Duplicate existing handrail bracket on the cast-iron railing of first-floor stairs in the lobby. Make molds from this bracket to create new cast-iron brackets.
- F. Date Identification: Emboss on a concealed, interior surface of the metal body of each new component, in easily read characters, "MADE <Insert year>." Manufacturer's name may also be embossed.

2.4 FINISHES

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 EXECUTION

3.1 HISTORIC TREATMENT PROCEDURES, GENERAL

- A. General: Treatment of historic items shall be based on minimal disturbance. Stabilize existing ornamental metal to reestablish weather resistance and structural integrity while maintaining the existing form of each item of ornamental metal. Stop the progress of deterioration and corrosion by removing deteriorated coatings and corrosion and reapplication of protective coatings. Repair items where stabilization is not sufficient to stop progress of deterioration. Repair items in place and retain as much original material as possible. Duplication and replacement of historic items shall be used only where indicated or scheduled.
 1. Patching, repairs, replacements, and additions to existing materials shall be reversible whenever possible.
- B. Repair Appearance Standard: Repaired surfaces are to have a uniform appearance as viewed from 5 feet away by Architect.

3.2 PROTECTION

- A. Protect all metal elements during removal, transport and reinstallation from damage or deterioration.

- B. Protect finishes of metal elements from damage during the construction period by use of approved temporary coverings. Remove covering at time of substantial completion.
- C. Restore all finishes damaged by installation and construction to ensure that no evidence of corrective work is visible.
 - 1. Protect back-up masonry, exposed building face, and adjacent building materials while metal elements are removed and during removal and installation processes.

3.3 GENERAL CLEANING:

- A. Remove all loose dirt and dust with soft bristle brushes and vacuum. Use a soft nylon or natural bristle brush to loosen dirt in corners and around areas of detail.
- B. Rub down using a clean, soft, lint-free cloth.

3.4 HEAVY SOILING AND ACCUMULATED COATINGS

- A. Remove all loose dirt and dust with soft bristle brushes and vacuum. Use a soft nylon or natural bristle brush to loosen dirt in corners and around areas of detail.
- B. Surfactant Cleaning:
 - 1. Prepare a 2 percent solution of surfactant (2-1/2 fluid ounces to one gallon of warm water).
 - 2. Pre-wet area to be cleaned with warm water.
 - 3. Wash surfaces with surfactant solution applied with a soft lint-free cloth. Thoroughly wash all surfaces, including recesses and crevices. Use small soft brushes or cotton swabs to reach into narrow crevices. Control and collect run-off of solution; do not allow it to contact other surfaces.
 - 4. Rinse surfaces with ethanol applied with a soft lint-free cloth. Thoroughly rinse all surfaces, including recesses and crevices. Control and collect ethanol; do not allow it to contact other surfaces.
 - 5. Remove dirt built-up in crevices with acetone applied with cotton swabs after the initial surfactant washing and rinsing.
 - 6. Repeat washing and rinsing procedures as necessary to remove all dirt and surfactant residue.

3.5 STRIPPING, CLEANING, AND REFINISHING WITH OXIDIZING/CONVERSION TREATMENT STATUARY COLOR AND CLEAR COAT FINISH

- A. Examination: Examine each removed element prior to stripping of finish to determine that no damage occurred as a result of the shipping process. Inform the Architect if any element has been damaged and to what extent. Photographically document all shipping damages.

B. Stripping/Cleaning:

1. For metal elements to be stripped/cleaned in place, protect all surrounding finishes prior to beginning work and provide the area with adequate ventilation.
2. Remove all current coatings using approved lacquer stripper, scouring pads, cloths, etc. as needed. Rubbing should be with the “grain” of the metal, not across the metal’s rolling direction. Steel wool should never be used on copper-based alloys.
3. Remove all traces of the stripper using a clean cloth or flushed with appropriate solvent.
4. Repeat this process until all traces of the current coatings is removed.
5. Where a new finish is required, strip all coatings to bare bronze.
6. Examine all metal elements following solvent cleaning to detect any fractures which were hidden by paint film. Bring to the attention of the Architect any fractures or other imperfections which may effect the longevity of the bronze/brass installation.
7. Clean bronze/brass metal using a solution of 5% oxalic acid, or a mixture of a solution of 5% oxalic acid with fine India pumice powder. The cleaning should be done using a fairly stiff short-bristled cleaning brush in the direction of the grain.
8. Rinse thoroughly with water until all traces of the oxalic acid solution and pumice powder are removed and wipe dry with a clean cloth.

C. Application of oxidation/conversion treatment statuary finish:

1. Pre-mockup testing: Oxidation/conversion treatment at new and existing bronze/brass elements shall all match in color, pattern, etc. The color of oxidation/conversion treatment may vary across the different bronze elements due to their unique alloy composition. Prior to starting mockups - Contractor to provide test samples on all types of bronze/brass elements to receive oxidation/conversion treatment statuary finish to determine the color combination and ratio of proposed products at each of the bronze types in order to achieve an exact color match and antique pattern across all of them.
2. Prepare the metal as needed to receive approved finish.
3. Provide the appropriate finish solution to create the approved, antique patina color and pattern on all bronze/brass surfaces.
4. Spray-apply approved high-performance clear coating evenly on all exposed bronze/brass surfaces per manufacturer’s written instructions, with interim drying between coats. Provide at least two (2) coats of approved clear coat or as recommended by manufacturer. Protect coated surface from contamination until fully cured.

3.6 STRIPPING, CLEANING AND RECOATING OF CLEAR-COATED BRASS ELEMENTS:

A. Stripping:

1. Protect all surrounding finishes prior to beginning work and provide the area with adequate ventilation.
2. Remove all current coatings using approved lacquer stripper, scouring pads, cloths, etc. as needed. Rubbing should be with the “grain” of the metal, not across the metal’s rolling direction. Steel wool should never be used on copper-based alloys.
3. Remove all traces of the stripper using a clean cloth or flushed with appropriate solvent.
4. Repeat this process until all traces of the current coatings is removed.

B. Cleaning:

1. Apply cream cleanser that will not tarnish or scratch metal surfaces with a clean soft cloth. Use a toothbrush to scrub in crevices.
2. Rinse with clean, warm water until all cleaning product is removed and dry thoroughly.

C. Coating:

1. Spray-apply approved high-performance clear coating evenly on all exposed bronze/brass surfaces per manufacturer’s written instructions, with interim drying between coats. Allow for at least two (2) coats of approved clear coat or as recommended by manufacturer. Protect coated surface from contamination until fully cured.

3.7 REPAIR OF ORNAMENTAL METAL ITEMS

A. Match existing materials and features and repair existing work retaining as much original material as possible to complete the repair.

1. Unless otherwise indicated, repair ornamental metals by patching, piecing-in, splicing, or otherwise reinforcing metals with new metal to match existing metal.
2. Where indicated, repair ornamental metal by limited replacement in kind.
3. Fill all open holes, including at former attachments, pitted and gouged surfaces with metal patching compound.

B. At miscellaneous brass elements such as floor cover plates, etc., provide new brass element to match existing where part is damaged or missing.

3.8 HISTORIC DECORATIVE METAL REPLICATION, GENERAL

A. Replication Appearance Standard: Replicated surfaces are to have a uniform appearance as viewed from 2ft away by Architect.

- B. Execution of the Work: In replicating historic items, disturb remaining existing work as minimally as possible and as follows:
1. Sequence work to minimize time before protective coatings are applied.
 2. Replace or reproduce historic items where indicated or scheduled.
 3. Make installation of replicated items reversible whenever possible.
- C. Replicate Decorative Metal Item: Where indicated, duplicate existing items with new materials matching existing materials and features.
1. Design heavily deteriorated or missing features of decorative metal with compatible materials, using surviving prototypes to create patterns or molds for duplicating.
 2. Do not use substitute materials unless otherwise indicated.
 3. Compatible substitute materials may be used only upon written approval.

3.9 HISTORIC METAL ELEMENTS TO BE DISMANTLED & REASSEMBLED

- A. Identification and Cataloging: Identify each component prior to removal/disassembly and attach identification tag with appropriate ID number and clearly indicating their current location or room number. Contractor shall photograph each component at least once prior to removal. Key all identification numbers to elevations and components as indicated on photographs of the structure which have been approved by the Architect. Attach tags through existing fastener holes. Tags shall remain on each component for the full duration of their time in storage, (or until reinstallation if applicable).
- B. Examination: Following removal of each element, and prior to performing repairs, perform an inspection accompanied by the Architect to determine the condition of the element. Revise the Repair Schedule following examination of each element.
- C. Removal:
1. Once all parts are clearly labeled, support each element in place to ensure that no breakage occurs during the removal operation.
 2. Carefully remove and tag all fasteners for storage or to allow for reinstallation at original locations. Keep each item stored together with all its original fasteners.
 3. Properly pack all removed elements for transport or storage to ensure that no breakage occurs during the process.
 4. If item is being removed for salvage, return to Owner in neat and organized condition.
 5. If item is being reinstalled, reinstall in original location using unless otherwise noted.

3.10 METAL ELEMENTS TO RECEIVE NEW PAINT FINISH:

- A. The following materials are listed as a beginning point to aid the Contractor in preparing initial test samples. The choice of products to be used is subject to approval of test samples and mockups during Submittals.
1. For coating new aluminum elements:
 - a. Coat 1: Sherwin Williams Extreme Bond Primer (B51W150)
Or approved equal.
 - b. Coat 2: Sherwin Williams Emerald Satin in approved custom color.
Or approved equal.
 - c. Coat 3: Sherwin Williams Emerald Satin in approved custom color.
Or approved equal.
 - d. Custom color to match existing adjacent finish.
 2. For coating existing, painted bronze elements: Provide high-performance acrylic polyurethane coating with corrosion inhibitors formulated by manufacturer for use on painted metals at interior and exterior applications.
 - a. Coat 1: Sherwin Williams Extreme Bond Primer (B51W150)
Or approved equal.
 - b. Coat 2: Sherwin Williams Emerald Satin in approved custom color.
Or approved equal.
 - c. Coat 3: Sherwin Williams Emerald Satin in approved custom color.
Or approved equal.
 - d. Custom color to match existing adjacent finish.
 3. For coating new, unlacquered bronze/brass elements and existing stripped bronze elements:
 - a. Clean, repair and prepare the surface to receive new oxidation/conversion treatment statuary finish.
 - b. Apply approved oxidation/conversion treatment in approved combination and pattern determined during successful test samples and mockups. Note that a combination of several finish colors may be needed to achieve the desired antique finish.
 - c. Provide three (3) coats of approved clear coat finish, or as many as recommended by oxidation/conversion treatment product manufacturer.
 4. For coating existing, bare iron elements after stripping: Provide high-performance acrylic polyurethane coating with corrosion inhibitors formulated by manufacturer for use on painted metals at interior and exterior applications.

3.11 RE-INSTALLATION OF METAL ELEMENTS:

A. Examination

1. Examine each element for damage to ensure that each element is properly prepared for installation/reinstallation. Inform the Architect of any condition which will prevent the proper and secure installation of each element.
2. Confirm that all necessary repairs at existing door frame have been completed, reinstalled and properly prepared for re-installation of metal elements.

B. Installation

1. Ensure that no condition exists to prevent the proper and secure installation of each element.
2. Support each element as it is installed to ensure that no damage occurs during the installation process.
3. Install each element in its original location, using existing fastener holes for installation of existing fasteners. Provide new fasteners to match existing if existing fasteners are damaged or missing.

3.12 ADJUSTING AND CLEANING

1. Touch-up scratches and other defects with same lacquer as used for refinishing. Remove, strip, polish, refinish, and reinstall if touch-up work is unacceptable to the Architect, until completed work matches accepted mock-ups.
1. Wipe completed work carefully with a soft cloth to remove fingerprints and dirt and leave in perfect condition.
2. Repair and refinish or replace surfaces or elements damaged in executing the work at no cost to the Owner. All new materials or finishes shall match existing in clean condition. Perform this in accordance with the requirements of other pertinent Specification sections or as directed by the Architect.

END OF SECTION

SECTION 054000 COLD FORMED METAL FRAMING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the cold formed metal framing as indicated on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. "C" shaped steel studs for exterior non-load bearing wall frame construction.
 - 2. "C" shaped steel joists.
 - 3. Anchors and accessories.
 - 4. Gypsum sheathing.
 - 5. Field inspection.

1.3 RELATED SECTIONS

- A. Unit Masonry - Section 042000.
- B. Thermal Insulation - Section 072100.
- C. Wood shingle siding – Section 074624
- D. Polyethylene air barrier - Section 072191.
- E. Interior steel stud construction - Section 092900.

1.4 QUALITY ASSURANCE

- A. Component Design: Compute structural properties of studs in accordance with AISI "North American Specification for the Design of Cold Formed Steel Structural Members."
- B. Fire-Rated Assemblies: Where framing units are indicated to be components of fire-resistance rated assemblies, provide cold formed metal framing identical to that of assemblies tested for fire resistance per ASTM E 119 by a testing and inspection agency acceptable to authorities having jurisdiction. Products used in the assembly shall carry a classification label from an approved testing and inspection agency.
- C. Qualifications
 - 1. Manufacturer's Qualifications: Minimum five years' experience in producing products of the type specified.

2. Installer's Qualifications: Minimum three years' experience in installation of the type of product specified.
3. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M "Structural Welding Code - Steel" and AWS DL3 "Structural Welding Code – Sheet Steel."

D. Pre-Installation Meeting

1. Convene meeting at project site within one week of scheduled start of installation with representatives of the following in attendance: Owner, Architect, General Contractor, and metal framing subcontractor.
2. Review substrate conditions, requirements of related work, installation instructions, storage and handling procedures, and protection measures.
3. Keep minutes of meeting, including responsibilities of various parties and deviations from specifications and installation instructions. Distribute minutes to attendees within 72 hours.

E. Comply with the following standards:

1. American Iron and Steel Institute (AISI):
 - a. "North American Specification for the Design of Cold-Formed Steel Structural Members," latest edition.
 - b. "Standard for Cold-Formed Steel Framing General Provisions."
2. American Welding Society (AWS):
 - a. Structural Welding Code (D1.1).
 - b. Specifications for Welding Sheet Steel in Structures (E1.3).
3. ASTM:
 - a. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - b. ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
 - c. ASTM A 924 - Standard Requirements for Sheet Steel, Metallic-Coated by the Hot-Dipped Process.
 - d. ASTM C 955 – Standard Specification for Cold-Formed Structural Framing Members.
 - e. ASTM A 1003 - Standard Specification for Steel Sheet, Carbon, Metallic- and Non-Metallic-Coated for Cold-Formed Framing Members.
 - f. ASTM C 1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.
 - g. ASTM C 1513 - Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.

- F. Vertical and Lateral Fire Propagation Test Characteristics: The exterior wall assembly is required to comply with NFPA 285 "Standard Method of Test for the Evaluation of

Flammability Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components.” The base wall, stud cavity insulation, wall sheathing, air barrier, continuous wall rigid insulation and exterior cladding are components that are required to be evaluated as part of this specific assembly test. The basis of design product listed below is a component of the design test assembly selected by the Architect.

- G. Provide fire blocking as required by New York City Building within exterior assembly.

1.5 SUBMITTALS

- A. Product Data: For information only, submit copies of manufacturer's product information and installation instructions for each item of cold-formed framing and accessories.
- B. Shop Drawings
 - 1. Submit shop drawings for special components and installations not fully dimensioned or detailed in manufacturer's product data. Include placing drawings for framing members showing size and gauge designations, number, type, location and spacing. Indicate supplemental bracing, splices, window and door headers accessories and details as may be required for proper installation.
 - 2. If the Contractor elects to prefabricate framing members into panels for erection, he shall submit shop drawings of such panels at suitable scale showing all dimensions, components, and methods of fastening and support.
- C. For fasteners, submit product data sheet and samples.
- D. Engineering Data
 - 1. Submit Engineering Data drawings to the Architect for review. The Contractor is responsible for the structural design and supports for the cold-formed metal frame, and must show his proposed system and how the Performance Criteria noted below is accommodated on these drawings.
 - 2. These drawings must show all load conditions and design calculations relative to connections, fastening devices and anchorage, as well as size and gauge of members. Calculations and drawings must be prepared by a Structural Engineer licensed in the State of New York and shall be signed and sealed by this Engineer.
- E. Quality Assurance Submittals: Submit the following:
 - 1. Qualifications: Proof of manufacturer and installer qualifications.
 - a. Member in good standing of the Steel Framing Industry Association (SFIA) or be a part of a similar organization that provides verifiable code compliance.
 - b. Products to be certified under an independent third-party inspection program administered by an agency accredited by IAS to ICC-ES AC98 IAS Accreditation Criteria for Inspection Agencies.
 - 2. Structural design calculations.
 - 3. Certificates

- a. Submit mill certificates by framing member/accessory manufacturer certifying compliance with material requirements.
- b. Welder certificates.

4. Manufacturer's installation instructions for framing members and framing accessories.

1.6 PERFORMANCE CRITERIA

- A. Cold-formed metal framing system shall be designed, fabricated, and installed to withstand a suction and pressure load per Code with a maximum deflection of $L/360$ with siding.
- B. Cold Formed Steel Framing Standards: Unless more stringent requirements are indicated, framing shall comply with AISI S100 and AISI S200 and ASTM C955, Section 8. AISI S200 and ASTM C955, Section 8 applies, except that ASTM C955, Section 8 (the screw penetration test) applies only to studs/tracks. Otherwise only AISI S200 applies).
- C. Design system to accommodate vertical deflection of structural building frame, live loading, seasonal and day/night temperature ranges and construction tolerances.
- D. Comply with prevailing Code requirements for seismic connections and loads.

1.7 PRODUCT DELIVERY AND STORAGE

- A. Protect metal framing units from rusting and damage. Deliver to one project site in manufacturer's unopened containers or bundles, fully identified with name, brand, type and grade. Store off the ground in a dry ventilated space or protect with suitable waterproof coverings. Conform to storage and handling requirements of AISI "Code of Standard Practice."

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Provide cold-formed steel framing manufactured by Marino/Ware, Superior Steel Studs, Clark Dietrich Building Systems, Super Stud Building Products, or approved equal.

2.2 METAL FRAMING: GENERAL

- A. System Components: With each type of metal framing required, provide manufacturer's standard steel runners, (tracks), blocking, lintels, clip angles, shoes, reinforcements, fasteners and accessories, as recommended by manufacturer for the applications indicated, as needed to provide a complete metal framing system.

2.3 MATERIALS

- A. Steel Sheet for Studs and Tracks: ASTM A 1003 Structural Grade, Type H, metallic coated, of grade and coating weight as follows:
 - 1. Grade: As required by structural performance.
 - 2. Coating: G90 galvanized coating.

- B. Steel Sheet for Clips: ASTM A 653, structural steel, zinc coated, of grade and coating as follows:

- 1. Grade: As required by structural performance.
- 2. Coating G90 galvanized coating.

2.4 FRAMING MEMBERS

- A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges; thickness and grade as required by structural performance.
- B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths compatible with studs, un-punched, with un-stiffened flanges; thickness and grade as required by structural performance.

2.5 FRAMING ACCESSORIES

- A. Stamp manufacturer's name on each accessory item.
- B. Provide screws with accessories designated for screw attachment.
- C. Connector Devices
 - 1. Vertical Deflection Clips: "VertiClip," including step bushings, as manufactured by The Steel Network Inc. (919) 845-1025 or approved equal. Rigid attachments to structure and screw attachment to stud web using step-bushings to permit frictionless vertical movement. 68 mils minimum thickness, size as required by structural design calculations.
 - 2. Rigid Clip Angles: "StiffClip" as manufactured by The Steel Network Inc., or approved equal, size as required by structural design calculations. Rigid attachment to structure and stud web.
- D. Bridging
 - 1. Cold Rolled Channel: 1-1/2" by 1/2" by 56 mil thick.
 - a. Bridging Clip: "BridgeClip" as manufactured by The Steel Network Inc. or approved equal. Provide attachment through stud punch-out clamping onto stud web and wrapping around bridging channel. Provide holes for screw attachment to stud web and channel.
 - 2. Flat Strap: Width and thickness as required by structural design calculations. Rigid attachment to stud flange.
 - 3. Solid Bridging: Channel shaped bridging with lipped flanges and integral formed clips. Screw attachment to stud. 33 mils minimum thickness, size as required by structural design calculations.
 - 4. Bridging and accessories shall be hot dip zinc coated per ASTM A 153.

- E. Header for Window and Door Openings: Provide "ProX Header" system made by Brady Innovations LLC, or approved equal complete with all accessories including clips and accessories; finish and gauge to match studs.

2.6 FASTENERS

- A. Screws: Corrosion resistant coated, self-drilling, pan or hex washer head. Provide screw type and size as required by structural design calculations.
- B. Anchor Bolts and Studs: ASTM A 307, Grade A, carbon steel, with hex-head carbon steel nuts and flat steel washers. Hot-dip zinc coated in accordance with ASTM A 153. Provide bolt or stud type and size as required by structural design calculations.
- C. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
- D. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E 1190 conducted by a qualified independent testing agency.

2.7 GALVANIZING TOUCH-UP

- A. For touching up damaged galvanized surfaces after erection, provide "Silver Galv" made by Z.R.C. Worldwide. Apply to a dry film thickness of 1.5 to 3.0 mils.

2.8 GYPSUM SHEATHING AND RELATED ACCESSORIES

- A. Gypsum Sheathing: 5/8" thick "Dens-Glass Fireguard," Type X, made by Georgia Pacific, "Securock Glass-Mat Sheathing" made by U.S. Gypsum Co., "Gold Bond EXP Extended Exposure Sheathing" made by National Gypsum Co., "Weather Defense" made by Lafarge/Continental, or approved equal, meeting ASTM C 1177, Type X.
- B. Fasteners: 1-1/4" Type S-12 screws "Climaseal" finish.
- C. Joint Treatment: Provide a one-part high performance sealant conforming to ASTM C 920, Type S, Grade NS, Class 25 meeting with the approval of the air/vapor barrier manufacturer for compatibility; see Section 072726 for description. Apply a 3/8" bead of sealant to the joint and trowel flat. Apply enough of the same material to each fastener to cover completely when trowelled flat.

2.9 FABRICATION

- A. Framing components may be prefabricated into panels prior to erection. Fabricate panels plumb, square, true to line and braced against racking with joints welded. Perform lifting of prefabricated panels in a manner to prevent damage or distortion in any members in the assembly.
- B. Fastenings: Attach similar components by welding. Attach dissimilar components by welding, bolting or screw fasteners, as standard with manufacturer.

- C. Wire tying of framing components is not permitted.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where cold-formed metal framing is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION: GENERAL

- A. Methods of construction shall be piece by piece.
- B. Connections shall be accomplished with self-drilling screws or welding so that the connection meets or exceeds the design loads required at that connection.
- C. Studs shall be installed seated squarely (within 1/16") against the web portion of the top and bottom tracks. Tracks shall rest on a continuous, uniform bearing surface.
- D. Cutting of steel framing members may be accomplished with a saw or shear. Torch cutting of loaded members is not permitted. Cutting of loaded members is not permitted unless under supervision of the project architect or engineer.
- E. Temporary bracing shall be provided and left in place until work is permanently stabilized.
- F. Bridging shall be of size and type shown on the approved shop drawings and as called for in the engineering calculations.
- G. Install headers in all openings that are larger than the stud spacing in that wall. Form headers as shown on the drawings.
- H. Insulation meeting the requirements of Section 072100 shall be placed in all jamb and header type conditions that will be inaccessible after their installation into the wall.
- I. Provide jack studs to support each end of headers. These studs shall be securely connected to the header and must seat squarely in the lower track of the wall, and be properly attached to it.
- J. If, by design, a header is low in the wall, the less than full-height studs (cripples) that occur over the header shall be designed to carry all imposed loads.
- K. Wall track shall not be used support any load unless specifically designed for that purpose.
- L. All axially loaded members shall be aligned vertically, to allow for full transfer of the loads down to the foundation. Vertical alignment shall be maintained at floor/wall intersections or alternate provisions for load transfer may be made.
- M. Holes that are field cut into steel framing members shall be within the limitation of the product and its design. Provide reinforcement where holes are cut through load bearing members in accordance with manufacturer's recommendations and as approved by the Architect or Engineer.

- N. Touch up all steel bared by welding using touch-up coating specified herein.
- O. Studs shall be spaced to suit the design requirements and limitations of collateral facing materials.
- P. Care should be taken to allow for additional studs at intersections, corners, doors, windows, control joints, etc., and as called for in the shop drawings or design calculations.
- Q. Install supplementary framing, blocking, and bracing in metal framing system wherever walls or partitions are indicated to support fixtures, equipment, services, casework, heavy trim and furnishings, and similar work requiring attachment to the wall or partition. Where type of supplementary support is not otherwise indicated, comply with stud manufacturer's recommendations and industry standards in each case, considering weight or loading resulting from item supported.
- R. Provide for structure movement, expansion shall be allowed where indicated and necessary by design or code requirements.
- S. Frame both sides of expansion and control joints with separate studs; do not bridge the joint with components of stud system.
- T. Install horizontal bridging in stud system, spaced (vertical distance) at not more than 48 inches on center. Fasten at each intersection.
- U. Splicing of axially loaded members or floor joists shall not be permitted.
- V. Wire tying of members is not permitted.

3.3 INSTALLATION OF GYPSUM SHEATHING

- A. Fasten sheathing to exterior of each stud with specified fasteners spaced 3/8" from ends and edges and approx. 8" o.c. at each stud. Install fasteners in accordance with manufacturer's recommendations using 2500-RPM maximum screw gun. Sheathing board shall be installed horizontally. Apply sealant between joints and trowel flush; and apply sealant around sheathing perimeter and at interface with other materials. Cover fastener heads with sealant and trowel flush.
- B. Refer to Section 072726 for air barrier description.

END OF SECTION

SECTION 055000 MISCELLANEOUS METALS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the miscellaneous metal work as indicated on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Rough hardware.
 - 2. Vertical steel ladders.
 - 3. Steel pipe handrails and railings.
 - 4. Loose steel lintels.
 - 5. Light steel framing and supports, not included as part of work of other trades.
 - 6. Miscellaneous steel trim, corner guards, angle guards and channels.
 - 7. Countertop supports.
 - 8. Masonry support steel.
 - 9. Sleeves in concrete walls and slabs.
 - 10. Steel framing, bracing, supports, anchors, bolts, shims, fastenings, and all other supplementary parts indicated on drawings or as required to complete each item of work of this Section.
 - 11. Prime painting, touch-up painting, galvanizing and separation of dissimilar metals for work of this Section.
 - 12. Cutting, fitting, drilling and tapping work of this Section to accommodate work of other Sections and of concrete, masonry or other materials as required for attaching and installing work of this Section.

1.3 RELATED SECTIONS

- A. Painting and Finishing - Section 099000.

1.4 QUALITY ASSURANCE

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.
- B. Shop Assembly: Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.
- C. Reference Standards: The work is subject to requirements of applicable portions of the following standards:
 - 1. "Manual of Steel Construction," American Institute of Steel Construction.
 - 2. AWS D1-1 "Structural Welding Code," American Welding Society.
 - 3. SSPC SP-3 "Surface Preparation Specification No. 3, Power Tool Cleaning," Steel Structures Painting Council.
 - 4. SSPC PA-1 "Painting Application Specification," Steel Structures Painting Council.
 - 5. "Handbook on Bolt, Nut and Rivet Standards," Industrial Fasteners Institute.
- D. Steel Materials: For steel to be hot dip-galvanized, provide steel chemically suitable for metal coatings complying with the following requirements: carbon below 0.25 percent, silicon below 0.24 percent, phosphorous below 0.05 percent, and manganese below 1.35 percent. Notify galvanizer if steel does not comply with these requirements to determine suitability for processing.
- E. Engage the services of a galvanizer who has demonstrated a minimum of five (5) years' experience in the successful performance of the processes outlined in this specification in the facility where the work is to be done and who will apply the galvanizing and coatings within the same facility as outlined herein. The Architect has the right to inspect and approve or reject the galvanizer/galvanizing facility.
- F. The galvanizer/galvanizing facility must have an ongoing Quality Control/Quality Assurance program which has been in effect for a minimum of five years and shall provide the Architect with process and final inspection documentation. The galvanizer/galvanizing facility must have an on-premise testing facility capable of measuring the chemical and metallurgical composition of the galvanizing bath and pickling tanks.
- G. Inspection and testing of hot-dip galvanized coating shall be done under the guidelines provided in the American Hot-Dip Galvanizers Association (AGA) publication "Inspection of Products Hot-Dip Galvanized After Fabrication."

1.5 PERFORMANCE STANDARDS

- A. Railings shall be constructed to conform to the following performance standards:
 - 1. Railings shall be designed to resist loads per State of New York Building Code.

1.6 SUBMITTALS

- A. Provide submittal documentation including material data sheets, certifications and/or invoices which list sustainable criteria relevant to the EGC credits applicable for this material.
- B. Manufacturer's Literature: Submit manufacturer's specifications, load tables, dimension diagrams, anchor details and installation instructions for products to be used in the fabrication of miscellaneous metal work, including paint products.
- C. Shop Drawings: Shop drawings for the fabrication and erection of all assemblies of miscellaneous iron work which are not completely shown by manufacturer's data sheets. Include plans and elevations at not less than 1" to 1'-0" scale, and include details of sections and connections at not less than 3" to 1'-0" scale. Show anchorage and accessory items.
- D. Engineering Data
 - 1. Before any ladders and railings are fabricated, submit engineering data drawings to the Architect for review indicating how performance standards specified here shall be met. The Contractor is responsible for the structural design and supports for these systems and must show his proposed systems on these drawings.
 - 2. These drawings must show all load conditions and design calculations relative to connections, fastening devices and anchorage, as well as size and gauge of members. Calculations and drawings must be prepared by a Structural Engineer licensed in the State of New York and shall be signed and sealed by this Engineer.
- E. Welding shall be indicated on shop drawings using AWS symbols and showing length, size and spacing (if not continuous). Auxiliary views shall be shown to clarify all welding. Notes such as 1/4" weld, weld and tack weld are not acceptable.
- F. Certification: For items to be hot-dip galvanized, identify each item galvanized and to show compliance of application. The Certificate shall be signed by the galvanizer and shall contain a detailed description of the material processed and the ASTM standard used for the coating and, the weight of the coating. In addition, and as attachment to Certification, submit reports of testing and inspections indicating compliance with the provisions of this Section.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Metals
 - 1. Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.
 - 2. Steel Plates, Shapes and Bars: ASTM A 36.
 - 3. Steel Bar Grating: ASTM A 1011/A or ASTM A 36.
 - 4. Steel Tubing: Cold formed, ASTM A 500; or hot rolled, ASTM A 501.

5. Structural Steel Sheet: Hot rolled, ASTM A 570; or cold rolled, ASTM A 611, Class 1; of grade required for design loading.
 6. Galvanized Structural Steel Sheet: ASTM A 924, of grade required for design loading. Coating designation G90.
 7. Steel Pipe: ASTM A 53, type and grade as selected by fabricator and as required for design loading; black finish unless galvanizing is indicated; standard weight (Schedule 40), unless otherwise indicated.
 8. Gray Iron Castings: ASTM A 48, Class 30, unless another class is indicated or required by structural loads.
 9. Malleable Iron Castings: ASTM A 47, grade as selected by fabricator.
 10. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.
 11. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A 153.
- B. Grout: Non-shrink, non-metallic grout conforming to the requirements of Section 033000.
- C. Fasteners
1. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
 2. Bolts and Nuts: Regular hexagon head type, ASTM A 307, Grade A.
 3. Anchor Bolts: ASTM F 1554, Grade 36.
 4. Lag Bolts: ASME B18.2.1.
 5. Machine Screws: ASME B18.6.3.
 6. Plain Washers: Round, carbon steel, ASME B18.22.1.
 7. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.
 8. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.
 9. Lock Washers: Helical spring type carbon steel, ASME B18.21.1.
- D. Shop Paint: Shop prime all non-galvanized miscellaneous metal items using Series 88 Azaron Primer made by Tnemec, ICI Devco "Rust Guard" quick dry alkyd shop coat No. 41403, or "Interlac 393" by International Protection Coatings.
1. If steel is to receive high performance coating as noted in Section 099000, shop prime using primer noted in Section 099000.
- E. Bituminous Paint: Cold applied asphalt emulsion complying with ASTM D 1187.

- F. Galvanizing Repair Coating: For touching up galvanized surfaces after erection, provide repair coating that is V.O.C. compliant, equal to "Silver Galv" made by Z.R.C. Worldwide or approved equal. Apply to a dry film thickness of 1.5 to 3.0 mils.

2.2 PRIME PAINTING

- A. Scope: All ferrous metal (except galvanized steel) shall be cleaned and shop painted with one coat of specified ferrous metal primer. No shop prime paint required on galvanized steel or aluminum work.
- B. Cleaning: Conform to Steel Structures Painting Council Surface Preparation Specification SP 3 (latest edition) "Power Tool Cleaning" for cleaning of ferrous metals which are to receive shop prime coat.
 - 1. Steel to get high performance coating as noted in Section 099000 shall be cleaned as per SSPC SP.6 "Commercial Blast Cleaning."
- C. Application
 - 1. Apply shop prime coat immediately after cleaning metal. Apply paint in dry weather or under cover. Metal surfaces shall be free from frost or moisture when painted. Paint all metal surfaces including edges, joints, holes, corners, etc.
 - 2. Paint surfaces which will be concealed after shop assembly prior to such assembly. Apply paint in accordance with approved paint manufacturer's printed instructions, and the use of any thinners, adulterants or admixtures shall be only as stated in said instructions.
 - 3. Paint shall uniformly and completely cover the metal surfaces, 2.0 mils minimum dry film thickness. No work shall be shipped until the shop prime coat thereon has dried.
- D. Touch-Up: In the shop, after assembly and in the field, after installation of work of this Section, touch-up damaged or abraded portions of shop prime paint with specified ferrous metal primer.
- E. Apply one shop coat to fabricated metal items, except apply two (2) coats of paint to surfaces inaccessible after assembly or erection. Change color of second coat to distinguish it from the first.

2.3 GALVANIZING

- A. Scope: All ferrous metal exposed to the weather, and all ferrous metals indicated on drawings or in specifications to be galvanized, shall be cleaned and then hot-dipped galvanized after fabrication as provided by Duncan Galvanizing or approved equal.
- B. Avoid fabrication techniques that could cause distortion or embrittlement of steel items to be hot-dip galvanized. Fabricator shall consult with hot-dip galvanizer regarding potential warpage problems or handling problems during the galvanizing process that may require adjustment of fabrication techniques or design before finalizing shop drawings and beginning of fabrication.
- C. Cleaning: Thoroughly clean metal surfaces of all mill scale, rust, dirt, grease, oil, moisture and other contaminants prior to galvanizing.

D. Application: Hot-dip galvanizing shall conform to the following::

1. ASTM A 143: Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel.
2. ASTM A 123: Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM A 153: Galvanized Coating on Iron and Steel Hardware - Table 1.
4. ASTM A 384: Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies.
5. ASTM A 385: Practice for Providing High Quality Zinc Coatings.
6. ASTM A 924: Galvanized Coating on Steel Sheets.
7. Minimum weight of galvanized coating shall be two (2) oz. per square foot of surface.

E. Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

F. All galvanized materials must be inspected for compliance with these specifications and marked with a stamp indicating the name of the galvanizer, the weight of the coating, and the appropriate ASTM number.

G. To minimize surface imperfection (eg: flux inclusions), material to be galvanized shall be dipped into a solution of Zinc Ammonium Chloride (pre-flux) immediately prior to galvanizing. The type of galvanizing process utilizing a flux blanket overlaying the molten zinc will not be permitted.

H. After galvanizing all materials not exposed to view must be chromated by dipping material in a 0.2% chromic acid solution.

I. Galvanized surfaces, where exposed to view, must have a smooth, level surface finish. Where this does not occur, piece shall be rejected and replaced to the acceptance of the Architect.

2.4 PROTECTIVE COATINGS

A. Whenever dissimilar metals will be in contact, separate contact surfaces by coating each contact surface prior to assembly or installation with one coat of specified bituminous paint, which shall be in addition to the specified shop prime paint. Mask off those surfaces not required to receive protective coating.

2.5 WORKMANSHIP

A. General

1. Miscellaneous metal work shall be fabricated by an experienced fabricator or manufacturer and installed by an experienced tradesman.

2. Materials, methods of fabrication, fitting, assembly, bracing, supporting, fastening, operating devices, and erection shall be in accordance with drawings and specifications, approved shop drawings, and best practices of the industry, using new and clean materials as specified, having structural properties sufficient to safely sustain or withstand stresses and strains to which materials and assembled work will be subjected.
 3. All work shall be accurately and neatly fabricated, assembled and erected.
- B. Shop Assembly: Insofar as practicable, fitting and assembly of work shall be done in shop. Shop assemble work in largest practical sizes to minimize field work. It is the responsibility of the miscellaneous metal subcontractor to assure himself that the shop-fabricated miscellaneous metal items will properly fit the field condition. In the event that shop-fabricated miscellaneous metal items do not fit the field condition, the item shall be returned to the shop for correction.
- C. Cutting: Cut metal by sawing, shearing, or blanking. Flame cutting will be permitted only if cut edges are ground back to clean, smooth edges. Make cuts accurate, clean, sharp and free of burrs, without deforming adjacent surfaces or metals.
- D. Holes: Drill or cleanly punch holes; do not burn.
- E. Connections: Make connections with tight joints, capable of developing full strength of member, flush unless indicated otherwise, formed to exclude water where exposed to weather. Locate joints where least conspicuous. Unless indicated otherwise, weld or bolt shop connections; bolt or screw field connections. Provide expansion and contraction joints to allow for thermal movement of metal at locations and by methods approved by Architect.
1. Welding
 - a. Shall be in accordance with AWS D1.1 Structural Welding Code of the American Welding Society, and shall be done with electrodes and/or methods recommended by the manufacturer of the metals being welded.
 - b. Welds shall be continuous, except where spot welding is specifically permitted. Welds exposed to view shall be ground flush and dressed smooth with and to match finish of adjoining surfaces; undercut metal edges where welds are required to be flush.
 - c. All welds on or behind surfaces which will be exposed to view shall be done so as to prevent distortion of finished surface. Remove weld spatter and welding oxides from all welded surfaces.
 2. Bolts and Screws: Make threaded connections tight with threads entirely concealed. Use lock nuts. Bolts and screw heads exposed to view shall be flat and countersunk. Cut off projecting ends of exposed bolts and screws flush with nuts or adjacent metal.
- F. Operating Mechanism: Operating devices (i.e. pivots, hinges, etc.) mechanism and hardware used in connection with this work shall be fabricated, assembled, installed and adjusted after installation so that they will operate smoothly, freely, noiselessly and without excessive friction.
- G. Built-In Work: Furnish anchor bolts, inserts, plates and any other anchorage devices, and all other items specified under this Section of the Specifications to be built into concrete, masonry

or work of other trades, with necessary templates and instructions, and in ample time to facilitate proper placing and installation.

- H. Supplementary Parts: Provide as necessary to complete each item of work, even though such supplementary parts are not shown or specified.
- I. Coordination: Accurately cut, fit, drill and tap work of this Section to accommodate and fit work of other trades. Furnish or obtain, as applicable, templates and drawings to or from applicable trades for proper coordination of this work.
- J. Exposed Work
 - 1. In addition to requirements specified herein and shown on drawings, all surfaces exposed to view shall be clean and free from dirt, stains, grease, scratches, distortions, waves, dents, buckles, tool marks, burrs, and other defects which mar appearance of finished work.
 - 2. Metal work exposed to view shall be straight and true to line or curve, smooth arrises and angles as sharp as practicable, miters formed in true alignment, profiles accurately intersecting, and with joints carefully matched to produce continuity of line and design.
 - 3. Exposed fastenings, where permitted, shall be of the same material, color and finish as the metal to which applied, unless otherwise indicated, and shall be of the smallest practicable size.
- K. Preparation for Hot-Dip Galvanizing: Fabricator shall correctly prepare assemblies for galvanizing in consultation with galvanizer and in accordance with applicable Reference Standards and applicable AGA publications for the "Design of Products to be Hot-Dip galvanized After Fabrication." Preparation shall include but not be limited to the following:
 - 1. Remove welding flux.
 - 2. Drill appropriate vent holes and provide for drainage in inconspicuous locations of hollow sections and semi-enclosed elements. After galvanizing, plug vent holes with shaped lead and grind smooth.

2.6 MISCELLANEOUS METALS ITEMS

A. Rough Hardware

- 1. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 Sections.
- 2. Fabricate items to sizes, shapes and dimensions required. Furnish malleable iron washers for heads and nuts which bear on wood connections; elsewhere, furnish steel washers.

B. Ladders

- 1. Vertical steel ladders shall be eighteen (18) inches wide with 3/4" diameter non-slip steel rungs spaced twelve (12) inches o.c. Stringers shall be 3/8" thick by 2-1/2" wide steel bars; rungs welded to bars. Attach ladders to walls six (6) inches from top and

bottom and maximum thirty-six (36) inches o.c. from these points. At the roof, gooseneck the rails back to the structure to provide secure ladder access.

2. Provide sloping ladders (ship's ladders) where noted. Fabricate open type construction with structural steel channel or steel plate stringers, pipe handrails, and open steel grating treads. Provide all necessary brackets and fittings for installation.
3. Ladders shall be fabricated to support a live load of one hundred (100) lbs. per square foot and a concentrated load of three hundred (300) lbs. per rung; loads not to act simultaneously.

C. Steel Pipe Handrails

1. Steel pipe of size shown on Drawings, Schedule 40. Fittings shall be flush type, malleable of cast iron. Brackets shall be malleable iron, design as selected by the Architect.
2. Construction: Form direction changes in rails using solid bar stock or elbows. Connections shall be shop welded and ground smooth and flush, except where field connections and expansion joints are required. Field connections may be welded, internal sleeve and plug weld, or internal sleeve and set screw.
3. Secure handrails to walls with wall brackets. Provide brackets of malleable iron castings, with not more than three (3) inches clearance from inside face of handrail to wall surface. Neatly drill wall plate portion of the bracket into concrete or masonry to receive bolts for concealed anchorage. For installation at drywall, Drywall trades shall provide plate to receive wall plate portion of bracket and anchor or bolt wall plate through drywall to supporting steel plate. Locate brackets at not more than 5'-0" o.c. unless otherwise shown.
4. Provide wall return fittings of cast iron, flush type, with the same projection as that specified for wall brackets.
5. Longitudinal members shall be parallel with each other and with floor surface or shape of stair to a tolerance of 1/8" in 10'-0" linear feet. Center line of members within each run of railing shall be in the plane.
6. For steel pipe posts where indicated, anchor posts in concrete by means of pipe sleeves set and anchored into concrete. Provide sleeves of galvanized steel pipe, not less than six (6) inches long and having an inside diameter not less than 1/2" greater than outside diameter of the inserted pipe. Provide steel plate closure secure to bottom of sleeve and of width and length not less than one (1) inch greater than outside diameter of sleeve. After posts have been inserted into sleeves, fill annular space between post and sleeve solid with non-shrink, non-ferrous grout. Cover anchorage joint with a round steel flange welded to post. Posts shall be set plumb within 1/8" vertical tolerance.
7. Steel pipe handrails shall be capable of resisting a two hundred (200) lb. force applied to rail from any direction and a uniformly distributed load of fifty (50) lbs. per linear foot applied downward or horizontally, loads not to act simultaneously.

D. Loose Steel Lintels

1. Provide loose structural steel lintels for openings and recesses in masonry walls and partitions as shown. Weld adjoining members together to form a single unit where indicated. Provide not less than eight (8) inches bearing at each side of openings, unless otherwise indicated.
2. Loose lintels shall conform to the following Schedule:

Opening Width (Maximum)	WALL THICKNESS		
	4 inches	6 inches	8 inches*
2'-0"	3-1/2" x 3-1/2" x 1/4"	6" x 4" x 5/16"	3-1/2" x 3-1/2" x 1/4"
3'-0"	3-1/2" x 3-1/2" x 5/16"	6" x 4" x 5/16"	3-1/2" x 3-1/2" x 5/16"
4'-0"	3-1/2" x 3-1/2" x 5/16"	6" x 4" x 5/16"	3-1/2" x 3-1/2" x 5/16"
5'-0"	4" x 3-1/2" x 3/8"	6" x 4" x 3/8"	4" x 3-1/2" x 5/16"
6'-0"	5" x 3-1/2" x 3/8"	6" x 4" x 3/8"	5" x 3-1/2" x 5/16"
7'-0"	5" x 3-1/2" x 3/8"	5" x 5" x 1/2"	5" x 3-1/2" x 3/8"
8'-0"	5" x 3-1/2" x 3/8"	5" x 5" x 5/8"	5" x 3-1/2" x 3/8"

* Two angles at all openings in eight (8) inch walls.

3. At columns or vertical surfaces where lintels cannot bear on masonry, provide clip angles sized for structural capacity of lintel.

E. Miscellaneous Light Steel Framing

1. Light steel framing, bracing, supports, framing, clip angles, shelf angles, plates, etc., shall be of such shapes and sizes as indicated on the drawings and details or as required to suit the condition and shall be provided with all necessary supports and reinforcing such as hangers, braces, struts, clip angles, anchors, bolts, nuts, welds, etc., as required to properly support and rigidly fasten and anchor same in place and to steel, concrete, masonry and all other connecting and adjoining work.
2. All light steel framing steel shall be furnished and erected in accordance with the applicable requirements of the "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" by the American Institute of Steel Construction and as specified herein.

- F. Countertop Supports: Steel framing as indicated or required to support countertops. Conceal framing under countertops and within wall behind countertops. Provide supports to withstand a

concentrated load of not less than three hundred (300) lbs. applied at any point with a deflection not to exceed $L/240$ for the length of the countertop.

G. Masonry Support Steel

1. Provide galvanized steel, , plates, accessories and other steel shapes for masonry support steel; for lintels refer to Para. E. herein.
2. Manufacturer shall provide signed and seal calculations and shop drawings by a Professional Engineer licensed in the State of New York for design and engineering of system.
3. Fabricate masonry support steel to allow final adjustment with the closest tolerances possible. Relieving angles which require cutting to fit masonry flashing shall be straightened without deflections.
4. Coordinate masonry support system with concrete work for locations of wedge inserts.
5. Install to meet requirements of building masonry work, face brick coursing and stone placement. Coordinate final adjustments with masonry work as work progresses.

H. Sleeves in Concrete Walls and Slabs

1. Sleeves through concrete walls shall be of Schedule 40 steel pipe with i.d. two (2) inches larger than o.d. of pipe or conduit (including insulation, if any) to be accommodated. Sleeves shall project one-half ($1/2$) inch on each side of finished wall. Provide rectangular one-quarter ($1/4$) inch steel plate collar at center, continuously welded to the perimeter of the sleeve, and six (6) inches wider than the o.d.
2. Slots in slabs shall be 12 gauge steel sheet, galvanized, of dimensions indicated, with strap anchors welded in place not more than twelve (12) inches on centers.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where miscellaneous metal is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 ERECTION

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.
- B. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide

temporary bracing or anchors in formwork for items which are to be built into concrete, masonry, or similar construction.

- C. Fitting Connections: Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot dip galvanized after fabrication, and are intended for bolted or screwed field connections.
- D. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance, and quality of welds made, and methods used in correcting welding work.
- E. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- F. Field Touch-Up of Galvanized Surfaces: Touch-up shop applied galvanized coatings damaged during handling and installation. Use galvanizing repair coating specified herein for galvanized surfaces.

END OF SECTION

SECTION 055213 - PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Steel tube handrails and guardrails.

B. Related Sections:

1. Section 013300 "Submittal Procedures" for delegated design
2. Section 033000 "Cast-in-Place Concrete" for retaining wall structure.

1.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design railings, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

- B. General: In engineering railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:

1. Steel: 72 percent of minimum yield strength.

- C. Structural Performance: Railings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Handrails and Top Rails of Guards:

- a. Uniform load of 50 lbf/ ft. (0.73 kN/m) applied in any direction.
- b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
- c. Uniform and concentrated loads need not be assumed to act concurrently.

2. Infill of Guards:

- a. Concentrated load of 50 lbf (0.22 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m).
- b. Infill load and other loads need not be assumed to act concurrently.

- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

- E. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.3 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Post, rail.
 - 2. Guardrails
 - 3. Grout, anchoring cement, and paint products.
- B. Shop Drawing for Guardrail: Include plans, elevations, sections, details, and attachments to other work. Show guardrail as attached to stone veneer retaining wall.
- C. Shop Drawing for Handrails: Include plans, elevations, sections, details, and attachments to other work.
- D. Samples for Verification: For each type of exposed finish required.
 - 1. Sections of each distinctly different linear railing member.
 - 2. Fittings Assembled Sample of guardrail system, made from full-size components, including top rail, post, handrail, and infill. Sample need not be full height.
- E. Delegated Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified, licensed, professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified professional engineer, fabricator, and testing agency.
- B. Welding certificates.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.
- D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of railing from single source from single manufacturer.
- B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- C. Professional Engineer Qualifications: A professional structural engineer who is licensed and legally qualified to practice in the State of New York and who is experienced in providing

engineering services of the kind indicated. Engineering services are defined as those performed for design and installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this project.

- D. Fabricator Qualifications: A firm with 5 years experience in producing products similar to those indicated for this project and with a record of successful in-service performance. Certify that the manufacturer/supplier has sufficient production capacity to produce required units.
- E. Engineering Calculations: Submit structural calculations completed by a structural engineer who is registered to practice in the State of New York.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

1.7 COORDINATION AND SCHEDULING

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- C. Schedule installation so attachments are made only to completed walls and Castairs. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

PART 2 - PRODUCTS

2.1 GUARDRAILS

- A. Basis-of-Design Railing Product: Subject to compliance with requirements, provide ADA Rail aluminum component railing as manufactured and assembled by Hollaender® Manufacturing or an approved equivalent. Single source manufacturer is required. Welded railing will not be accepted.
 - 1. Posts will be anodized aluminum 6005 Sch 80, 1 ½ in IPS nominal (1.90 in. OD). Rail and handrail will be Sch 40. Where necessary, lengths of the handrail will be spliced using Hollaender Model 70ES-8 internal locking splices.
 - 2. Handrail will be attached to the post sections using Hollaender model 85 adjustable brackets and 5/16" – 18 anodized aluminum rivet nuts.
 - 3. In conditions where railing is top mounted to the ramp, flanges shall be Hollaender 45 SBCS angled flanges.
 - 4. When conditions dictate core mounting, drill core holes 6 in deep x 3 in OD, fill with non-shrink grout.

5. End loops, upper and lower, shall extend horizontally beyond the post and be attached to the handrail using 70 ES-8 locking splices.

2.2 HANDRAILS

- A. Square Steel tube: per the drawings.
- B. Provide escutcheons for posts: Basis of design is Julius Blum Iron tube sockets. Product # 203.

2.3 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.

2.4 ALUMINUM

- A. Aluminum, General: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than the strength and durability properties of alloy and temper designated below for each aluminum form required.
- B. Extruded Bars and Tubing: ASTM B 221, Alloy 6063-T6 or 6005A-T5
Provide 1 ½ in IPS, (1.90 in OD) Standard Weight (Schedule 40) pipe for handrail, Sch. 80 for posts.
- C. Plate and Sheet: ASTM B 209, Alloy 6061-T6
- D. Die and Hand Forgings: ASTM B 247, Alloy 6061-T6
- E. Castings: ASTM B 26/B 26M, Alloy Almag 535

2.5 STEEL AND IRON

- A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than **25** percent.
- B. Tubing: ASTM A 500 (cold formed) or ASTM A 513.
- C. Plates, Shapes, and Bars: ASTM A 36/A 36M.

2.6 FASTENERS

- A. For Aluminum Guardrail: Provide the following:

1. Aluminum Railings: Alloy steel fasteners with JS-600 zinc plating.
- B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads. Handrail attached to walls shall be attached using Hollaender 82E brackets. These brackets will be attached to the handrail using ¼-20 x 1" Stainless steel self tapping screws.
- C. Fasteners for Interconnecting Railing Components:
 1. Handrail attached to posts on ramps shall be attached using Hollaender #85 adjustable brackets. The bracket shall be attached to the post using 5/16" – 18 rivet nuts and 5/16-18 x 1 ¼" button head screw. The bracket shall attach to the handrail using ¼-20 self tapping screws. This combination shall prevent any loosening of the system due to changes in temperature or vibration. Systems using pop rivets or adhesives will not be accepted.
- D. Anchors: Provide concrete adhesive anchors where indicated or necessary.
 1. T6 aluminum alloy.
- E. For steel handrail: Provide the following:
 1. Hot-Dip Galvanized Railings: Type 304 stainless-steel or hot-dip zinc-coated steel fasteners complying with ASTM A 153/A 153M or ASTM F 2329 for zinc coating.
- F. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.

2.7 MISCELLANEOUS MATERIALS

- A. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- B. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- C. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. Etching Cleaner for Galvanized Metal: Complying with MPI#25.
- E. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- F. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.

1. Water-Resistant Product: At exterior locations provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.
- G. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

2.8 ALUMINUM FINISHES FOR GUARDRAIL

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Unless indicated otherwise, provide aluminum pipe with the following finish:
 1. Anodized Finish: AA-M10C22A41 (Architectural class, .7 mil thickness or greater)
 2. Color to match Handrails

2.9 PAINT SYSTEM FINISH FOR HANDRAIL

- A. Cleaning of Ferrous Metals shall be done in compliance with Steel Structures Painting Council (SSPC) SP6 Commercial Blast Cleaning or as indicated in Schedule of Coating Systems below.
- B. Shop Applied Coatings:
 1. Exterior Metal members shall be primed with one coat of Tnemec Series 90-97 Tnemec Zinc primer as indicated in Schedule below. If a factory finish or complete system application is desired, then apply the intermediate and finish coats of Tnemec as listed in the coating schedule.
 2. Apply materials at film thickness specified by methods recommended by manufacturer in compliance with SSPC PA-1.
 3. Allow each coat of paint to dry thoroughly before applying succeeding coats.
 4. Make finish topcoats smooth, uniform in color, and free of laps, runs, dry spray, over-spray, and skipped or missed areas.
 5. Environmental conditions shall be in compliance with coating manufacturer's printed instructions.
- C. C.Field Touch-up shop applied coatings that are damaged during handling, and shipping, or from stacking and erection of members at the jobsite.
- D. D.Schedule of Coating Systems:
 1. Surface Preparation: SSPC SP6 Commercial Blast Cleaning
 2. Shop/Field Primer Coat: Tnemec Series 90-97 Tnemec-Zinc; Color: Reddish-Gray
 - a. Dry Film Thickness: 2.5 to 3.5 mils
 3. First Coat: Series 161-color Tnemec-Fascure; Color Grey

- a. Dry film Thickness: 3.0-5.0 mils
- 4. Finish Coat: Tnemec Series Fluoronar Semi Gloss; Color: Black
 - a. Dry Film Thickness: 2.5-3.0 mils
- 5. Total Dry Film Thickness 8.0 to 11.5 mils

2.10 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Assemble railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form work true to line and level with accurate angles and surfaces.
- E. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- G. Connections: Fabricate railings with welded connections unless otherwise indicated.
- H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove flux immediately.
 - 4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- I. Form changes in direction as follows:
 - 1. By radius bends of radius indicated.
- J. Bend members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

- K. Close exposed ends of railing members with prefabricated end fittings.
- L. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
- M. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.
- N. For railing posts set in concrete, provide stainless-steel sleeves not less than 6 inches (150 mm) long with inside dimensions not less than 1/2 inch (13 mm) greater than outside dimensions of post, with metal plate forming bottom closure.

2.11 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Provide escutcheon plates of the same material with finish matching appearance, including color and texture, of railings.

2.12 STEEL AND IRON FINISHES

- A. Galvanized Railings:
 - 1. Hot-dip galvanize indicated steel and iron railings, including hardware, after fabrication.
 - 2. Comply with ASTM A 123/A 123M for hot-dip galvanized railings.
 - 3. Comply with ASTM A 153/A 153M for hot-dip galvanized hardware.
 - 4. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
 - 5. Fill vent and drain holes that will be exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- B. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.
- C. Preparing Galvanized Railings for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with etching cleaner.

- D. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 1. Exterior Railings: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Railings Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- E. Primer Application: Apply shop primer to prepared surfaces of railings unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
- F. High-Performance Coating: Apply intermediate and topcoats to prime-coated surfaces. Comply with coating manufacturer's written instructions and with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Apply at spreading rates recommended by coating manufacturer.
 - 1. Finish Color: Black.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
 - 1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 - 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
 - 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (5 mm in 3 m).
- C. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- D. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.2 RAILING CONNECTIONS

- A. Welded Connections for handrails: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.

- B. Non-welded Connections for guardrails: Use mechanical joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings.
- C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches (50 mm) beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within 6 inches (150 mm) of post.

3.3 ANCHORING POSTS

- A. Anchor posts as indicated on the drawings.
- B. Use metal sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.
- C. Form or core-drill holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.
- D. Cover anchorage joint with flange of same metal as post, attached to post with set screws.

3.4 ADJUSTING AND CLEANING

- A. Clean aluminum by washing thoroughly with clean water and soap and rinsing with clean water.
- B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.
 - 2. Areas where touch-up paint is applied should be indistinguishable from the original finish.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.5 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 055213

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SECTION 057000 ORNAMENTAL METALS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the ornamental metals, including heavy gauge stainless steel and non-ferrous metal products which are used in building construction for functional, architectural, and decorative effects, and which are not a part of other metal systems specified in other Sections. The extent of these items is indicated on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Architectural grilles.
 - 2. Beveled ramp nosing.
 - 3. Countertop support brackets.
 - 4. Fireplace fender.

1.3 RELATED SECTIONS

- A. Miscellaneous Metals - Section 055000.

1.4 QUALITY ASSURANCE

- A. General: Work of this section shall be fabricated and installed by an experienced fabricator or manufacturer who has been engaged in work of equivalent scope and fabrication standards for at least five (5) years. Materials, methods of fabrication, fitting, assembly, bracing, supporting, fastening, operating devices, and erection shall be in accordance with drawings, specifications, and approved shop drawings, and be of highest quality practices of the industry, using new and clean materials as specified, having structural properties sufficient to safely sustain or withstand stresses and strains to which materials and assembled work will be subjected. All work shall be accurately and neatly fabricated, assembled, and erected.
- B. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible, to ensure proper fitting of the work. However, do not delay job progress; allow for adjustments and fitting where taking of field measurements before fabrication might delay the work.
- C. Shop Assembly: Insofar as practicable, fitting and assembly of work shall be done in shop. Work that cannot be permanently shop assembled, shall be completely assembled, marked and disassembled in shop before shipment to insure proper assembly in field. Shop assemble work in largest practical sizes to minimize field work. It is the responsibility of the Contractor for this work to assure himself that the shop fabricated items will properly fit the field condition. In

the event that shop fabricated items do not fit the field condition, the item shall be returned to the shop for correction.

1.5 SUBMITTALS

- A. Shop Drawings: Submit for all items of work of this Section, as enumerated under paragraph 1.2, showing locations, layouts, materials, thicknesses, finishes, dimensions, construction, relation to adjoining construction, erection details, profiles, jointing and all other details to fully illustrate the work of this Section.
- B. Samples: Submit fabricated samples (of sufficient size to fully show construction, materials and finishes) of all items of work as enumerated under paragraph 1.2 herein.
- C. Product Data: Submit manufacturer's, fabricator's and finisher's specifications and installation instructions for products used in ornamental metal work, including finishing materials and methods.
- D. Samples for Verification: For each type of exposed finish required, prepared on 12 inch x 12 inch samples of metal of same thickness and material indicated for the Work.

1.6 COORDINATION

- A. Coordinate installation of anchorages for decorative formed metal items. Furnish setting drawings, templates and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts and items with integral anchors, that are to be embedded in concrete to masonry. Deliver such items to Project site in time for installation.
- B. Coordinate installation of decorative formed metal with adjacent construction to ensure that wall assemblies, flashings, trim and joint sealants, are protected against damage from the effects of weather, age, corrosion and other causes.

1.7 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary at no additional cost to the Owner.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Provide materials which have been selected for their surface flatness, smoothness and freedom from surface blemishes where exposed to view in the finished unit. Exposed to view surfaces which exhibit pitting, seam marks, roller marks, "oil-canning," stains, discolorations, or other imperfections on the finished units will not be acceptable.
- B. Bronze
 - 1. Comply with the following standards for the forms and types of bronze for the required items of work.

- a. Temper: Provide bronze materials in standard commercial tempers and hardness, as required for fabrication, strength and durability.
 - b. Extruded Shapes: ASTM B 455, Alloy UNS No. C38500 (architectural bronze).
 - c. Plates and Bars: ASTM B 36, Alloy UNS No. C28000 (muntz metal, 60 percent copper).
 - d. Seamless Tube: ASTM B 135, Alloy UNS No. C23000 (red brass, 85 percent copper).
 - e. Seamless Pipe: ASTM B 43, Alloy UNS No. C23000 (red brass, 85 percent copper).
 - f. Composition Bronze Castings: ASTM B 62, Alloy UNS No. C83600 (85-5-5-5 or composition bronze).
- C. Malleable Iron Castings: ASTM A 48, Class 30, and shall be uniform in quality, free from blow holes, porosity, hard spots, shrinkage defects, swells, cracks or other defects. Surfaces shall be smooth and true to pattern.
- D. Steel (Carbon) for Concealed Supports Only
 - 1. Structural Shapes: ASTM A 36.
 - 2. Plates (for forming or bending cold): ASTM A 283, Grade C.
 - 3. Steel Sheets: ASTM A 366, Grade 1.
 - 4. Shop prime with rust inhibitive primer equal to Series 88 Azerox made by Tnemec, or approved equal made by Benjamin Moore or Sherwin Williams.
- E. Welding Electrodes and Filler Metal: Type and alloy of filler metal and electrodes as recommended by producer of the metal to be welded, and as required for color match, strength and compatibility in the fabricated items.
- F. Fasteners: Furnish basic metal and alloy, matching finished color and texture as the metal being fastened, unless otherwise indicated. Provide Phillips flat-head screws for exposed fasteners, unless otherwise indicated.
- G. Anchors and Inserts: Either furnish inserts to be set in concrete or masonry work, or provide other anchoring devices as required for the installation of ornamental metal items. Provide toothed steel or lead shield expansion bolt devices for drilled-in-place anchors. Provide galvanized or cadmium-coated anchors and inserts for exterior installations.
 - 1. Provide units with exposed surfaces matching the texture and finish of the metal item anchored.
- H. Bituminous Paint: SSPC-Paint 12 (cold-applied asphalt mastic).
- I. Cast-in-Place and Preinstalled Anchors: Anchors fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete.
- J. Sealants, Interior: Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834; of type and grade required to seal joints in decorative formed metal; and as recommended in writing by decorative formed metal manufacturer.

1. Sealants shall have a VOC content of not more than 250 g/l when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- K. Filler Metal and Electrodes: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded or brazed and as necessary for strength, corrosion resistance, and compatibility in fabricated items
1. Use filler metals that will match the color of metal being joined and will not cause discoloration.

2.2 FABRICATION

- A. Cutting: Cut metal by sawing, shearing or blanking. Flame cutting will be permitted only if cut edges are ground back to clean, smooth edges. Make cuts accurate, clean, sharp, square and free of burrs, without deforming adjacent surfaces or metals.
- B. Holes: Drill or cleanly punch holes (do not burn), so that holes will be accurate, clean, neat and sharp without deforming adjacent surfaces or metals.
- C. Connections
1. Make connections with tight joints, capable of developing full strength of member, flush unless indicated otherwise, formed to exclude water where exposed to water. Locate joints where indicated on drawings. Provide connections to allow for thermal movement of metal at locations and by methods approved by Architect. For work exposed to view, use concealed fasteners (unless welded or other connections indicated) with joints accurately fitted, flush and rigidly secured with hairline contacts. All edges within public reach shall be eased.
 2. Brazing (for Brass and Bronze): Brazing shall be in accordance with recommendations of the producer of the metal, using type and alloy of filler metal and electrodes as required for color match, strength and compatibility in the fabricated items. Brazing shall be continuous. Brazed surfaces exposed to view shall be ground flush and dressed smooth with and to match finish of adjoining surfaces so that joint will not be visible; undercut metal edges where brazed surfaces are required to be ground flush and dressed smooth. All brazed surfaces on or behind surfaces which will be exposed to view shall be done so that finished surface will be free of imperfections such as pits, runs, splatter, cracks, warping, dimpling, depressions or other forms of distortion or discoloration. Remove splatter and oxides from all brazed surfaces.
 3. Bolts and Screws: Make threaded connections tight with threads entirely concealed. Use lock nuts. Bolts and screw heads, where shown to be exposed to view, shall be flat and countersunk. Cut off projecting ends of exposed bolts and screws flush with nuts of adjacent metal.
- D. Built-In Work: Furnish anchor bolts, inserts, plates and any other anchorage devices, and all other items for architectural metal work to be built into concrete, masonry, or work of other trades, with necessary templates and instructions, and in ample time to facilitate proper placing and installation.
- E. Supplementary Parts: Provide as necessary to complete each item of work, even though such supplementary parts are not shown or specified.

- F. Coordination: Accurately cut, fit, drill and tap work of this Section to accommodate and fit work of other trades. Furnish or obtain, as applicable, templates and drawings to or from applicable trades for proper coordination of this work.
- G. Exposed Work: In addition to requirements specified herein or shown on drawings, all surfaces exposed to view shall be clean, and free from dirt, stains, grease, scratches, distortions, waves, dents, buckles, tool marks, burrs and other defects which mar appearance of finished work. Ornamental metal work exposed to view shall be straight and true to line or curve, smooth arrises and angles as sharp as practicable, miters formed in true alignment, profiles accurately intersecting, and with joints carefully matched to produce continuity of line and design. Exposed fastenings, where permitted, shall be of the same material, color and finish as the metal to which applied, unless otherwise indicated, and shall be of the smallest practicable size.
- H. Materials used shall be of such strength, thickness and alloy that they are capable of meeting all standards and descriptions specified herein and as detailed on drawings.
- I. Bending: Bend sheet metal to the required shape. Bent items shall be free of grain separation, oil canning or other distortion.
 - 1. Square Bends: Back-cut sheets to attach maximum square bend possible, with maximum radius of 1/16 in.
 - 2. Knife Edge Bends: Back-cut and back bevel sheets to attain sharpest bend possible, with maximum radius of 1/32 in.

2.3 SHOP FINISHING

A. General

- 1. Comply with NAAMM "Metal Finishes Manual" for finish designations and application recommendations, except as otherwise indicated.
- 2. Provide colors or color matches as indicated on selected samples.
- 3. Protect mechanical finishes on exposed surfaces from damage by application of strippable temporary protective covering prior to shipment.
- 4. Corrosion Protection: Coat concealed surfaces which will be in contact with concrete, masonry, wood or dissimilar metals, in exterior work and work to be built into exterior and below grade walls and decks, with a heavy coat of bituminous paint. Do not extend coating onto exposed surfaces.

B. Bronze

- 1. Hand Rubbed Natural Satin Finish, Lacquered: CDA-M31-M34-06x, fine satin directional textured mechanical finish followed by hand-rubbed directional textured mechanical finish, with clear organic coating specified below.
 - a. Clear Organic Coating: Air-dried acrylic coating; Incralac as developed by International Copper Research Corp., 1.0 mil minimum dry thickness.
- 2. Color: Uniform, matching color of accepted sample.

2.4 PROTECTION

- A. Provide necessary protection to all exposed surfaces of architectural metal work, so as to prevent damage, staining, discoloration, abrasion, etc., to these surfaces from time of shipment from factory to acceptance of work of this project. Protection shall be provided by wrappings, strippable coatings, or other means. After installation, remove protective paper or strippable coating and clean exposed surfaces, and then provide additional temporary protection to protect architectural metal work from damage during subsequent construction activities. Surfaces which are damaged, stained, discolored, abraded etc., shall be rejected and replaced with new materials, at no cost to the Owner.

2.5 ARCHITECTURAL GRILLES

- A. Provide Style 208 "Lattice Perforated Grille" as manufactured by Architectural Grille, satin bronze finish, wall ceiling and floor locations (1/4" thick floors, 1/8" thick walls and ceilings). Open area and size shall be as indicated on the architectural drawings.

2.6 BEVELED RAMP NOSING

- A. Ballroom 124 Beveled Ramp Nosing: Bronze.

2.7 COUNTERTOP SUPPORT BRACKETS

- A. Surface-Mounted Counter Brackets: L-shaped bracket fabricated from aluminum T sections designed for supporting countertops of depth indicated; RAKKS Model EH-1818 as manufactured by Rangine Corporation, or approved equal.
- B. Fabricate components from extruded aluminum sections complying with ASTM B221, 6063-T5 alloy and temper. Exposed aluminum surfaces shall be free of scratches and other serious blemishes and be factory finished with custom anodized coating with color selected by Architect and complying with AAMA 606.1 - MM10C22A44.

2.8 ORNAMENTAL METAL FIREPLACE FENDER

- A. General: Provide metal selected for surface flatness, smoothness, and freedom from surface blemishes where exposed to view in the finished unit. Do not use materials with pitting, seam marks, roller marks, variations in flatness exceeding those permitted by referenced standards for stretcher leveled metal sheet, stains, discoloration, or other imperfections.
- B. Coordinate dimensions and attachment methods of metal fabrications with those of adjoining products and construction to produce integrated assemblies with closely fitting joints and with edges and surfaces aligned with one another in the relationship indicated.
- C. Increase metal thickness or reinforce metal with concealed stiffeners, backing materials, or both, as required to produce surfaces whose variations in flatness do not exceed those permitted by referenced standards for stretcher leveled metal sheet and to impart sufficient strength for indicated use.
 - 1. Support joints with concealed stiffeners as required to hold exposed faces of adjoining sheets in flush alignment.

2. Fill space between stiffeners with sound deadening insulation attached to face sheet with cold applied asphalt mastic, unless otherwise indicated.
- D. Assemble metal fabrications in the shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
 - E. Form metal fabrications to profiles indicated in maximum lengths to minimize joints and without exposed cut edges. Fold back exposed ends of unsupported sheet metal to form a 1/2" wide hem on the concealed side, or ease exposed edges with backing to a radius of approximately 1/32". Produce flat, flush surfaces without cracking or grain separation at bends.
 - F. Continuously weld joints and seams, except where other methods of joining are indicated. Grind, fill, and dress welds to produce smooth flush exposed surfaces in which welds are not visible after final finishing is completed.
 - G. Build in straps, plates, and brackets as required for supporting and anchoring fabricated items to adjoining construction. Reinforce metal units as required to attach and support other construction.
 - H. Where noted, shop perforate enclosure following perforation pattern shown on drawings. Roll, press and grind perforated metal to flatten and to remove burrs and deformations.
 - I. Conceal fasteners unless otherwise noted on drawings. Size fasteners to support closures and trim, with fasteners spaced to prevent buckling or waviness in finished surfaces.
 - J. Miter or cope trim members at corners to form tight joints.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where ornamental metal work is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. General: Install work of this Section square, plumb, straight, true to line or radius, accurately fitted and located, with flush, tight hairline joints (except as otherwise indicated or to allow for thermal movement), with provisions for other trades, with provisions to allow for thermal movement, with provisions to exclude water where exposed to weather, and with attachment devices as required for secure and rigid installation. It is the responsibility of the Contractor to assure himself that shop fabricated architectural metal items will properly fit the field condition. In cases where the shop fabricated architectural metal items do not fit the field condition, the item shall be returned to the shop for correction.
- B. Attachments
 1. Unless otherwise indicated, work to be built into concrete or masonry shall be anchored with shop welded on galvanized steel strap anchors; work to be attached to concrete or

masonry shall be anchored by bolts into embedded inserts or expansion shields; work attached to structural steel shall be anchored by welds or bolts; work attached to metals other than structural steel shall be anchored by bolts or screws. Power actuated fasteners not permitted unless approved by Architect. Provide all supplementary parts necessary to complete each item of work of this Section.

2. All attachment devices shall be of type, size and spacing to suit condition and as approved by Architect. Provide shims, slotted holes, or other means necessary for leveling, plumbing and other required adjustments. Attachment devices for work exposed to view shall be concealed, unless indicated otherwise. Where bolts or screws are permitted in work exposed to view, they shall be oval head and counter sunk, unless otherwise noted, with projecting end cut off flush with nuts or adjacent material, and shall match adjacent surfaces.
3. Do all necessary drilling, tapping, cutting or other preparations of surrounding construction in the field accurately, neatly and as necessary for the attachment and support of work of this Section, but obtain Architect's approval prior to such preparation to work of others.

C. Tolerances: All work of this Section shall be plumb, square, level, true to radius and correctly aligned within the following limitations:

1. Offset from true horizontal, vertical and design location shall not exceed 1/16" per ten (10) feet of length for any component, not cumulative.
2. Maximum offset from true alignment between abutting components shall not Do not cut or abrade finishes which cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units at Contractor's option.

D. Install concealed gaskets and joint fillers as the work progresses, so as to make the work soundproof or lightproof as required.

E. Restore protective coverings which have been damaged during shipment or installation of the work. Remove protective coverings only when there is no possibility of damage from other work yet to be performed at the same location.

F. Retain protective coverings intact and remove simultaneously from similarly finished items to preclude non-uniform oxidation and discoloration.

G. Field Welding: Comply with AWS Code for the procedures of manual shielded metal-arc welding, the appearance and quality of welds made, and the methods used in correcting welding work.

3.3 CLEANING

A. Clean copper alloys according to metal finisher's written instructions in a manner that leaves an undamaged and uniform finish matching approved Sample.

3.4 PROTECTION

- A. Protect finishes of ornamental metal from damage during construction period with temporary protective coverings approved by ornamental metal fabricator. Remove protective covering at the time of Substantial Completion.
- B. Restore finishes damaged during construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION

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SECTION 057300 ORNAMENTAL METAL RAILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the ornamental metal railings as shown on the drawings and/or specified herein.
 - 1. Bronze and Stainless-Steel handrails and guardrails.

1.2 QUALITY ASSURANCE

- A. General: Work of this section shall be fabricated and installed by an experienced fabricator or manufacturer who has been engaged in work of equivalent scope and fabrication standards for at least five (5) years. Materials, methods of fabrication, fitting, assembly, bracing, supporting, fastening, operating devices, and erection shall be in accordance with drawings, specifications, and approved shop drawings, and be of highest quality practices of the industry, using new and clean materials as specified, having structural properties sufficient to safely sustain or withstand stresses and strains to which materials and assembled work will be subjected. All work shall be accurately and neatly fabricated, assembled, and erected.
- B. Single-Source Responsibility: Obtain railing systems of each type and material from a single manufacturer.
- C. Engineer Qualifications: Professional engineer legally authorized to practice in the State of New York and experienced in providing engineering services of the kind indicated for railing systems similar to this Project in material, design, and extent.

1.3 SUBMITTALS

- A. Shop Drawings: Submit for all items of work, at full scale as far as practical, showing metal thicknesses, arrangement of components, of joining, of jointing, details of all field connections and anchorages, diagrams and details explaining provisions for thermal movement, fastening and sealing methods, and support methods, metal finishes and all other pertinent information.
 - 1. Engineering design and calculations for handrails and railing assemblies - see Article 1.4 herein.
- B. Samples: Rail assemblies, 2'-0" long, made from full-size components, including top rail, post, handrail, and infill. Show method of finishing members at intersections. Samples need not be full height.

1.4 PERFORMANCE STANDARDS

- A. Railings assembly shall be constructed to conform to the following performance standards, unless greater required by the New York State Building Code:
 - 1. Stairs and platforms shall support a live load of one hundred (100) psf and a concentrated live load of three hundred (300) lbs. and shall have a live load deflection limited to 1/360 of the span. Loads shall not apply simultaneously.

2. Railings shall withstand a two hundred (200) lb. force applied to rail from any direction, and a uniformly distributed load of 50 lbs./lin. ft. applied downward or horizontally, loads not to act simultaneously.
- B. Submit calculations and drawings signed and sealed by a Professional Engineer licensed in the State of New York indicating that railing system can meet these performance criteria.

1.5 PRODUCT HANDLING

- A. Finished Materials: Protect finishes against soiling, staining or damage from scratches and abrasion. Maintain protection during construction until project completion or as otherwise directed by Architect.
 1. Provide wrappings, strippable coatings or other means approved by Architect.
 2. During construction, remove protection for visual observation of finish as directed by Architect and replace to maintain protection.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Provide materials which have been selected for their surface flatness, smoothness and freedom from surface blemishes where exposed to view in the finished unit. Surfaces exposed to view that exhibit pitting, seam marks, roller marks, oil-canning, stains, discolorations, or other imperfections on the finished units will not be acceptable.
- B. Bronze: Comply with the following standards for the forms and types of bronze for the required items of work.
 1. Temper: Provide bronze materials in standard commercial tempers and hardness, as required for fabrication, strength and durability.
 - a. Extruded Shapes: ASTM B 455, Alloy UNS No. C38500 (architectural bronze).
 - b. Plates and Bars: ASTM B 36, Alloy UNS No. C28000 (muntz metal, 60 percent copper).
 - c. Seamless Tube: ASTM B 135, Alloy UNS No. C23000 (red brass, 85 percent copper).
 - d. Seamless Pipe: ASTM B 43, Alloy UNS No. C23000 (red brass, 85 percent copper).
 - e. Composition Bronze Castings: ASTM B 62, Alloy UNS No. C83600 (85-5-5-5 or composition bronze).
- C. Stainless Steel
 1. Comply with the following standards for the forms and types of stainless steel for the required items of work.
 - a. Tubing: ASTM A 554, Grade MT 304 for interior, Grade MT 316L for exterior.
 - b. Pipe: ASTM A 312, Grade TP 304 for interior, Grade MT 316L for exterior.
 - c. Castings: ASTM A 743, Grade CF 8 or CF 20 for interior, Grade CF 8M or CF 3M for exterior.

- d. Sheet, Strip, Flat Bar and Plate: ASTM A 666, Type 304 for interior, Type 316L for exterior.
 - e. Bars and Shapes: ASTM A 276, Type 304 for interior, Type 316L for exterior.
- D. Welding Electrodes and Filler Metal: Type and alloy of filler metal and electrodes as recommended by producer of the metal to be welded, and as required for color match, strength and compatibility in the fabricated items.
- E. Fasteners: Furnish basic metal and alloy, matching finished color and texture as the metal being fastened, unless otherwise indicated. Provide Phillips flat-head screws for exposed fasteners, unless otherwise indicated.

2.2 FABRICATION

- A. General: Fabricate handrails and railing systems to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of hollow members, post spacings, and anchorage, but not less than those required to support structural loads.
- B. Assemble handrails and railings in shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- C. Connections: Make connections with tight joints, capable of developing full strength of member, flush unless indicated otherwise, formed to exclude water where exposed to water. Locate joints where indicated on drawings. Provide connections to allow for thermal movement of metal at locations and by methods approved by Architect. For work exposed to view, use concealed fasteners (unless welded or other connections indicated) with joints accurately fitted, flush and rigidly secured with hairline contacts.
1. Welding: Welding shall be in accordance with recommendations of the American Welding Society and shall be done with electrodes and/or methods recommended by the manufacturers of the metals being welded. Welds shall be continuous, except where spot welding is specifically permitted. Welds exposed to view shall be ground flush and dressed smooth with and to match finish of adjoining surfaces so that joint will not be visible; undercut metal edges where welds are required to be ground flush and dressed smooth. All welds on or behind surfaces which will be exposed to view shall be done so that finished surface will be free of imperfections such as pits, runs, splatter, cracks, warping, dimpling, depressions or other forms of distortion or discoloration. Remove weld splatter and welding oxides from all welded surfaces.
 2. Brazing: Brazing shall be in accordance with recommendations of the producer of the metal, using type and alloy of filler metal and electrodes as required for color match, strength and compatibility in the fabricated items. Brazing shall be continuous. Brazed surfaces exposed to view shall be ground flush and dressed smooth with and to match finish of adjoining surfaces so that joint will not be visible; undercut metal edges where brazed surfaces are required to be ground flush and dressed smooth. All brazed surfaces on or behind surfaces which will be exposed to view shall be done so that finished surface will be free of imperfections such as pits, runs, splatter, cracks, warping, dimpling, depressions

or other forms of distortion or discoloration. Remove splatter and oxides from all brazed surfaces.

3. Bolts and Screws: Make threaded connections tight with threads entirely concealed. Use lock nuts. Bolts and screw heads, where shown to be exposed to view, shall be flat and countersunk. Cut off projecting ends of exposed bolts and screws flush with nuts of adjacent metal.
- D. Supplementary Parts: Provide as necessary to complete each item of work, even though such supplementary parts are not shown or specified.
- E. Coordination: Accurately cut, fit, drill and tap work of this Section to accommodate and fit work of other trades. Furnish or obtain, as applicable, templates and drawings to or from applicable trades for proper coordination of this work.
- F. Exposed Work: In addition to requirements specified herein or shown on drawings, all surfaces exposed to view shall be clean, and free from dirt, stains, grease, scratches, distortions, waves, dents, buckles, tool marks, burrs and other defects which mar appearance of finished work. Ornamental metal work exposed to view shall be straight and true to line or curve, smooth arrises and angles as sharp as practicable, miters formed in true alignment, profiles accurately intersecting, and with joints carefully matched to produce continuity of line and design. Exposed fastenings, where permitted, shall be of the same material, color and finish as the metal to which applied, unless otherwise indicated, and shall be of the smallest practicable size.
- G. Materials used shall be of such strength, thickness and alloy that they are capable of meeting all standards and descriptions specified herein and as detailed on drawings.

2.3 SHOP FINISHING

A. General

1. Comply with NAAMM "Metal Finishes Manual" for finish designations and application recommendations, except as otherwise indicated.
2. Provide colors or color matches as indicated on selected samples.
3. Protect mechanical finishes on exposed surfaces from damage by application of strippable temporary protective covering prior to shipment.
4. Corrosion Protection: Coat concealed surfaces which will be in contact with concrete, masonry, wood or dissimilar metals, in exterior work and work to be built into exterior and below grade walls and decks, with a heavy coat of bituminous paint. Do not extend coating onto exposed surfaces.

B. Bronze

1. See finish schedule.

C. Stainless Steel

1. Remove or blend tool and die marks and stretch lines into finish.

2. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
3. Bright, Directional Polish: No. 4 finish.
4. Satin, Directional Polish: No. 6 finish.
5. Satin Reflective, Directional Polish: No. 7 finish.
6. Mirror-Like Reflective, Non-Directional Polish: No. 8 finish.
7. When polishing is complete, passivate and rinse surfaces. Remove foreign matter and leave surface chemically dry.

2.4 ORNAMENTAL HANDRAILS AND RAILINGS

- A. Welded Connections: Fabricate handrails and railings for connecting members by welding. Cope components at perpendicular and skew connections to provide close fit, or use fittings designed for this purpose. Weld connections continuously to comply with the following:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove flux immediately.
 4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
 5. Form changes in direction of railing members by radius bends.
 6. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain profile of member throughout entire bend without buckling, twisting, or otherwise deforming exposed surfaces of handrail and railing components.
 7. Provide wall returns at ends of wall-mounted handrails, close ends of returns.
 8. Close exposed ends of handrail and railing members with prefabricated end fittings.
 9. Brackets, Flanges, Fittings, and Anchors: Provide brackets, flanges, miscellaneous fittings, and anchors to interconnect handrail and railing members to other work, unless otherwise indicated.
 - a. Furnish inserts and other anchorage devices for connecting handrails and railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by handrails and railings. Coordinate anchorage devices with supporting structure.
 - b. For railing posts set in concrete, provide preset sleeves of steel, not less than 6 inches long and inside dimensions not less than 1/2 inch greater than outside dimensions of post, with steel plate forming bottom closure.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where ornamental metal work is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. General: Install work of this Section square, plumb, straight, true to line or radius, accurately fitted and located, with flush, tight hairline joints (except as otherwise indicated or to allow for thermal movement), with provisions for other trades, with provisions to allow for thermal movement, with provisions to exclude water where exposed to weather, and with attachment devices as required for secure and rigid installation. It is the responsibility of the Contractor to assure himself that shop fabricated architectural metal items will properly fit the field condition. In cases where the shop fabricated architectural metal items do not fit the field condition, the item shall be returned to the shop for correction.
- B. Attachments
 - 1. Unless otherwise indicated, work to be built into concrete or masonry shall be anchored with shop welded on galvanized steel strap anchors; work to be attached to concrete or masonry shall be anchored by bolts into embedded inserts or expansion shields; work attached to structural steel shall be anchored by welds or bolts; work attached to metals other than structural steel shall be anchored by bolts or screws. Power actuated fasteners not permitted unless approved by Architect. Provide all supplementary parts necessary to complete each item of work of this Section.
 - 2. All attachment devices shall be of type, size and spacing to suit condition and as approved by Architect. Provide shims, slotted holes, or other means necessary for leveling, plumbing and other required adjustments. Attachment devices for work exposed to view shall be concealed, unless indicated otherwise. Where bolts or screws are permitted in work exposed to view, they shall be oval head and counter sunk, unless otherwise noted, with projecting end cut off flush with nuts or adjacent material, and shall match adjacent surfaces.
 - 3. Do all necessary drilling, tapping, cutting or other preparations of surrounding construction in the field accurately, neatly and as necessary for the attachment and support of work of this Section, but obtain Architect's approval prior to such preparation to work of others.

3.3 CLEANING

- A. Clean stainless steel by washing thoroughly with clean water and soap and rinsing with clean water.
- B. Clean copper alloy (bronze) according to metal finisher's written instructions in a manner that leaves an undamaged and uniform finish matching approved Sample.

3.4 PROTECTION

- A. Protect finishes of ornamental metal from damage during construction period with temporary protective coverings approved by ornamental metal fabricator. Remove protective covering at the time of Substantial Completion.
- B. Restore finishes damaged during construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION

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SECTION 060312 – RESTORATION TREATMENT FOR HISTORIC WOODWORK

PART 1 GENERAL

1.1 DESCRIPTION

- A. John Jay Homestead is a National Historic Landmark, on the National Register of Historic Places and in the New York State Register of Historic Places.
- B. The historical and architectural significance of the site and its buildings require particular care when intervening with existing fabric to ensure restoration work and the construction of new interventions are of appropriate quality and undertaken with appropriate care for the historic fabric.
- C. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents, including but not limited to General and Supplementary Conditions and Division 01 Specifications Sections.

1.2 SECTION INCLUDES

- A. General:
 - 1. The Contractor shall provide all labor, materials, equipment and services required to complete the work as shown on drawings, as described in this section, and as may be required by conditions and authorities.
 - 2. Wood Restoration Contractor to provide all selective removals and dismantling of existing historic wood elements included in this scope of work (e.g. cuts, perforations, trenching, etc.) as needed for installation of new devices, lighting, etc. by others. Provide all needed repairs at historic wood elements after new installations are complete. Subject to review and acceptance by Client, Preservation Architect, and Construction Manager. General Contractor to coordinate the work of all relevant trades.
 - 3. Prior to starting the work - Contractor shall survey all areas where existing woodwork is shown to remain, in order to verify extent and locations of needed repairs, and confirm estimated quantities shown on the drawings. Results of the Contractor's survey shall be clearly communicated to Client, Architect and Construction Manager and form part of the Woodwork Restoration Quality Control Plan.
- B. Section includes historic treatment work consisting of repairing historic woodwork which includes but may not be limited to:
 - a. **(W-R1)** Prep, prime and paint existing wood elements to remain.
 - b. **(W-R2)** Crack repair
 - c. **(W-R3)** Partial replacement (dutchman repair)

- d. (W-R4) Replacement of deteriorated elements with new to match existing
- e. (W-R5) Patching wood elements
- f. (W-R6) Refastening subfloor and replacing missing subfloor boards
- g. (W-R7) Consolidating deteriorated wood areas prior to refinishing
- h. (W-R8) Removing unused anchors and providing wood fill repairs at resulting voids.
- i. (W-R9) Providing additional prep of existing paint surface to remove high-low areas and provide an even surface to receive new approved finishes.
- j. (W-R10) Strip, prep and provide new clear coat finish.

1.3 RELATED SECTIONS

- A. Historical Treatment Procedures – Section 013591
- B. Removal and Salvage of Historic Construction Materials – Section 020342
- C. Restoration Treatments for Historic Metals – Section 050300
- D. Restoration Treatment for Period Openings – Section 080300
- E. Wood Windows - 085200
- F. Restoration Treatment for Historic Plaster – Section 090120
- G. Wood Plan and Strip Flooring – Section 094600
- H. Painting and Finishing – Section 099000

1.4 DEFINITIONS

- A. Restored woodwork shall include all wood components removed, salvaged, altered and reinstalled where indicated on the drawings. Restoration shall include replacement of all missing wood elements with new wood, and restoration of finishes as indicated herein and on the drawings.
- B. Dutchman: The removal of areas of unsound wood from a single unit and the installation of a piece of the same stone, cut, carved and tooled to match color, texture, pattern and profile of the wood surface immediately adjacent.
- C. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.
- D. Refinish: To apply new finish to match original, or as otherwise indicated.

- E. Repair: To correct damage and defects, retaining existing materials, features, and finishes while employing as little new material as possible. Includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
- F. Restore: To consolidate, replicate, reproduce, repair, and refinish as required to achieve the indicated results.
- G. Retain: To keep existing items that are not to be removed or dismantled.
- H. Strip (as indicated on drawings): To remove existing finish down to base material, unless otherwise indicated.

1.5 QUALITY ASSURANCE

- A. Historic Treatment Specialist Qualifications: : A firm or company specializing in historic woodwork restoration with minimum ten (10) years of documented experience. Qualified companies must present examples of completed work on at least five (5) projects similar in material, design, and extent to that indicated for this Project, whose work has resulted in historic treatment of historic woodwork with a record of successful in-service performance. A firm or individual experienced in installing and finishing new decorative woodwork is insufficient experience for historic woodwork treatment.
 - a. The Contractor shall hold and provide evidence of current RRP certification of Trained & Certified EPA Lead Renovator and previous experience in removal of lead-based paint from exterior and interior wood surfaces.
- B. Field Supervision:
 - a. The Contractor shall maintain a full-time foreman/supervisor who shall be present on site or in the shop daily at all times that historic treatment of historic woodwork is in progress.
 - b. The Contractor shall maintain a steady work crew consisting of skilled craftsmen who are experienced with the materials and methods specified and familiar with the design requirements.
 - 1). Woodwork refinishing and repairs shall be executed by skilled persons thoroughly trained and familiar with the methods required.
 - 2). The Contractor shall confirm that all workers under their direction fully understand the requirements of the job.
 - c. Contractor shall notify Architect before beginning work. Obtain the Architect's approval of the installation of restored masonry before proceeding with the work.
- C. Source of Materials: Obtain materials for wood restoration from a single source for each type of material required to ensure a match in quality, color and texture.

- D. Bidders must visit the site beforehand and make themselves thoroughly familiar with specific conditions relating to this Section.
- E. Materials shall conform to the latest edition of reference specifications applicable and specified herein and to applicable codes and requirements of local authorities having jurisdiction.
 - a. Materials shall conform to governing regulations regarding the content of volatile organic compounds (VOC).
 - b. Finishing materials and work shall conform to the Painting and Decorating Contractors of America (PDCA)
 - c. The Contractor shall comply with relevant ASTM Standards for all materials.
 - d. All work shall comply with the United States Secretary of the Interior Standards for Rehabilitation and guidelines for Rehabilitating Historic Buildings, unless otherwise stated.
- F. Field Supervised Construction: The Contractor shall notify Architect before beginning any restoration.
- G. Pre-Installation Conference: Convene a pre-installation conference for specialty restoration scopes of work to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.
- H. The Contractor shall replace all broken, lost and damaged materials resulting from repair, removal, transportation, cleaning or storing at no expense to the Owner and to the satisfaction of the Architect.

1.6 RESTORED ARCHITECTURAL WOODWORK QUALITY STANDARDS

- A. The Quality Standards, latest edition of the Architectural Woodwork institute, shall apply to the work of this section. Except as otherwise indicated, provide "Premium Grade" work as defined in the above-referenced standard for all architectural woodwork.
- B. Wood to match existing: provide new wood to match original existing species and grade, or premium grade whichever is more stringent. New inserts in existing wood to receive a transparent/clear finish coating shall be selected to match grain, color and pattern. Research and on-site observations suggest wood species of existing elements at Bedford House include but may not be limited to the following species:
 - 1. At windows: Mahogany.
 - a. New wood for repairs at existing windows and doors shall match existing. For pricing purposes, provide **Sapele Mahogany**. All pieces shall be dried to an average moisture content of 12% (9-14% for individual pieces) before installation and treatment. Contractor to verify existing wood species at windows and doors prior to beginning the work. See also specification section 085200 "Wood Windows".

2. At floors, interior trim, baseboards and doors: Heart Pine and Mahogany
 - a. New wood for repairs at existing floors shall match existing. For pricing purposes, provide a combination of **Heart Pine, White Pine and Mahogany**. All wood shall be kiln-dried and moisture content at time of installation shall not exceed 8%. See also specification section 094600 "Wood Plan and Strip Flooring".
- C. Contractor to confirm existing wood species at each location/element prior to beginning the work.
- D. Wood Moisture Content: Provide kiln-dried (KD) lumber with an average content range of 6% to 11%, unless otherwise noted.

1.7 INFORMATIONAL SUBMITTALS

- A. Methods of Protection: Prior to commencing the protection and restoration, the contractor shall submit a written description of proposed material and methods of protection for preventing damage to any adjacent material or finish during the protection, removal, restoration and installation of the woodwork.
- B. Qualification Data: Submit qualification data, specified in "Quality Assurance" article that demonstrate the firms' and individuals' capabilities and experience.

1.8 ACTION SUBMITTALS

- A. Product Literature: Submit copies of manuf. latest published technical data for all products to be used.
- B. Woodwork Restoration Program: Prepare a written plan for restoration of woodwork, including each phase or process, protection of surrounding materials during operations, and control of spills during on-site repair and other processes. Describe, in detail, materials, methods, and equipment to be used for each phase of work. Show compliance with indicated methods and procedures related to restoration of woodwork specified in this section.
- C. Shop Drawings:
 - a. The Contractor shall submit complete shop drawings of all architectural woodwork to the Architect for approval. The Drawings shall include dimensioned elevations and sections as well as full size details of all typical members and joinery, types of materials, and shall show hardware and methods of securing and fastening members to adjacent work.
 - b. All dimensional information contained in the drawings, whether numerical, tabular, or graphic is provided only for the information of the Contractor and is not guaranteed. Contractor shall verify all measurements in the field.
 - c. Drawings shall show location of new blocking required to reinstall woodwork. Drawings shall clearly show proposed modification and alterations of salvaged woodwork to be completed prior to reinstallation.

- d. Shop drawings to indicate all materials, thicknesses and finishes.
 - e. Shop drawings shall show all finish hardware, anchors, fastenings and accessories.
- D. Schedule: The Contractor shall submit a schedule of work to the Architect. The schedule shall show all salvaged woodwork, and include finishes, wood types, locations, dimensions, and types of repair or replacement of each element prior to reinstallation. The schedule shall indicate the time of completion of each task and shall note accommodation of altered room dimensions.
- E. Samples: Submit three (3) samples of each type of new wood for repairs for the Architect's approval. Samples shall demonstrate any expected variations in color, texture, graining, etc.
- F. Mock-Ups: Provide mockups for each repair and restoration type based on approved testing to establish the standard by which the work will be judged for review and acceptance by Client, Architect, and Construction manager. Approximate size for repair mockups shall be an average size of 4" x 3", typ., for each type of species, without restored finish. Sizes will vary and shall be modified to suit location receiving the mockup. Mock-ups shall be approved by the Architect before work can proceed. Provide additional mock-up panels as necessary, adjusting methods and procedures, until reviewed and accepted by Client, Architect and Construction Manager.
 - 1. Prepare mock-ups on existing elements for all repairs in the scope of work, at locations approved by the Architect. Confirm all locations with Architect before beginning. Scope of work that will require mockups includes but may not be limited to:
 - a. W-R1: Prep, Prime and Paint Existing Wood Elements
 - b. W-R2: Crack Repair
 - c. W-R3: Partial Replacement (Dutchman repairs)
 - d. W-R4: Replace Deteriorated Element
 - e. W-R5: Patch Wood Element
 - f. W-R6: Refasten Subfloor and Replace Missing Boards
 - g. W-R7: Consolidate Deteriorated Area
 - h. W-R8: Remove Unused Anchor and Patch
 - 1). Three (3) locations of wood fill at wood to be painted.
 - 2). Three (3) locations wood fill at wood to receive clear coat finish. Provide tinted wood putty for clear finish wood.
 - i. W-R9: Additional Prep to Provide an Even Surface Prior to Refinishing

- j. W-R10: Strip, Prep and Provide New Clear Coat Finish
 - k. Hardware refurbishment and cleaning: Prepare samples of cleaning of soiling deposits and coatings as well as refinishing for each type of existing metal hardware. Allow for 2 samples at flat hardware surfaces and 2 at decorative hardware surfaces. Adjust and resubmit cleaning and refinishing samples until approved.
- G. Following any revisions requested by the Architect, the approved repairs shall form a quality standard for all further repair work and shall not be removed from their location until so directed by Architect.

1.9 MATERIAL STORAGE AND PROTECTION

- A. All materials when delivered to the site shall be stored to insure proper drainage, ventilation and protection from the elements.
- B. All materials salvaged from the Site shall be stored to insure protection from loss, theft, or damage by the elements.
- C. Salvaged, repaired woodwork shall not be delivered to the site until ready to be installed.
- D. No kiln-dried materials shall be placed in the building unless the building is sufficiently dry.

1.10 PROTECTION

- A. Take all necessary precautions to protect all persons (whether engaged in the work of this Section or not) from all hazards of any kind associated with the work of this Section.
- B. Take all necessary precautions to protect all property and materials (whether subject to the work of this Section or not) from any harm or damage associated with the work of this Section.
- C. Perform all work of this Section in accordance with all Federal, State, and local regulations regarding the transportation, storing, handling, application, removal and disposal of the products involved.
- D. Take all necessary precautions to prevent fire and spread of fire.

1.11 ARCHITECTURAL WOODWORK REMOVAL AND PROTECTION

- A. Woodwork to remain shall be protected by padded protective barriers to resist damage by the work of other trades.

1.12 ENVIRONMENTAL REQUIREMENTS

- A. Follow coating manufacturer's guidelines concerning temperature and humidity requirements for coating application or as specified herein, whichever is more stringent.

- B. Glazes and clear coatings must be applied in a dust-controlled environment acceptable to the Architect.

PART 2 PRODUCTS

2.1 ARCHITECTURAL WOODWORK - GENERAL REQUIREMENTS

- A. The grades of all materials under this section shall be as defined by the rules of the recognized association of lumber manufacturers producing the materials specified. Architectural woodwork shall conform to, or exceed, the requirements of "Premium Grade" as established by the Architectural Woodwork Institute and shall be provided in the cuts and figure required to match existing wood. Where conflicts occur between these standards and this Specification, the more stringent requirement shall govern in each case.
- B. Lumber and plywood shall bear the grade and trademark of the association and under whose rules it is produced, and a mark of mill identification.
- C. Lumber and finished woodwork throughout shall be of sound stock, thoroughly seasoned, kiln-dried to a moisture content not exceeding 19% for framing and 12% for finish, unless otherwise noted.
- D. Work that is to be finished or painted shall be free from defects or blemishes on surfaces exposed to view that will show after the finish coat of paint is applied. Any materials which are in any way defective and not up to specifications for quality and grade, or otherwise not in proper condition shall be rejected.
- E. All glues shall be non-staining waterproof types as manufactured by 3M Company, Pittsburgh Plate Glass Company, Borden Company, or equal manufacturer as approved by the Architect.
- F. All carpentry and millwork materials exposed to the weather or in contact with masonry or other dissimilar materials shall be preservative treated, including all field cuts and fittings.

2.2 FINISH CARPENTRY AND MILLWORK MATERIALS

- A. Quality Standards: The Quality Standards of the Architectural Woodwork Industry (AWI), shall apply and by reference are made a part of this specification.
- B. Quality Grade: Material and workmanship of all woodwork shall conform to the Premium Grade requirements of the AWI Quality Standards.
- C. New wood for finish millwork shall match existing wood species and cut.
- D. Joinery of panels, stiles and cross-rails, running and standing moldings, crown moldings, brackets, and other ornamental elements shall be fabricated to match existing, or AWI Premium Grade, whichever is more stringent.

- E. All millwork exposed to the weather or in contact with masonry or other dissimilar materials shall be given wood preservative treatment as specified herein.
- F. All work shall be back painted as specified herein.

2.3 HARDWARE

- A. General: Hardware shall consist of all existing hardware and fasteners. Restore all existing as specified herein and provide new to match existing where hardware and fasteners are missing or not salvageable. Provide new hardware to match existing as required.
- B. Restoration of Existing Hardware (all types)
 - a. Document original location using photographs and labels and carefully remove.
 - b. After removal of any unwanted coatings, thoroughly rinse and wipe dry. Do not scratch finish with abrasive pads or wire brushes.
 - c. Clean without removing existing patina and restore.
 - d. Oil operating parts and reinstall with new brass screws in repaired or existing woodwork.
 - e. See specification section 050300 Restoration Treatments for Historic Metals for more information about restoring hardware.

2.4 EPOXIES, ADHESIVES, AND FASTENERS

- A. Epoxy adhesive shall be low modulus, low viscosity two-component epoxy equal to West system 105 and 207 Hardener.
- B. Provide all new screws to match existing, or as indicated on the drawings.
- C. Provide new nails and brads to match existing.

2.5 PAINT STRIPPER

- A. Paint Stripper: Neutral pH, biodegradable, water rinseable, paste-type stripper containing n-methyl pyrrolidone and dibasic ester (DBE), but containing no methylene chloride or strongly alkaline caustics, as manufactured by Dumond Chemicals, Prosoco or Cathedral Stone Products Inc. Paint strippers to test during mock-ups include Smart Strip and Peel Away 7 by Dumond, SafStrip8 by Prosoco and Light Duty Paint Remover by Cathedral Stone.

2.6 CLEANING MATERIALS

- A. Cleaning pads.
- B. Scotch Guard.

- C. 0000 steel wool.
- D. Clean, lintless cotton rags and cheesecloth.
- E. Surfactant: A non-ionic surface-active agent composed of an anhydrous mixture of alcohol alkoxylate:
 - a. Simple Green by Sunshine Makers Inc.
 - b. Or approved equal.
- F. Mineral Spirits
- G. Kotton Klenser, manufactured by Kotton Klenser Products, Inc., Braden, TN.
- H. Vacuum

2.7 FINISH MATERIALS

- A. Solvents
 - 1. Denatured Alcohol: E.Z. Alcohol, Pure 180 proof denatured alcohol, as manufactured by E.E. Zimmerman Co., Pittsburgh, PA 15238, or approved equal.
 - 2. Mineral Spirits: As manufactured by Ashland Chemical, Inc., Carteret, NJ or approved equal.
 - 3. Paint Thinner: 100% petroleum distillate, mineral spirits, U.S. Paint Thinner, as manufactured by Recochem Inc., Montreal, Quebec, or approved equal.
 - 4. Turpentine: Pure gum spirits of turpentine meeting requirements of ASTM D 13.
- B. Coatings
 - 1. Distilled water
 - 2. Wood dye: such as TransTint Liquid Dyes as manufactured by Homestead Finishing Products or approved equal. Color selection to be determined after mock-ups.
 - 3. Oil stain: such as ZAR Interior Wood Stain as manufactured by United Gilsonite Laboratories, Mohawk Penetrating Oil Stain or approved equal. Color selection to be determined after mock-ups.
 - 4. Shellac: blonde, concentrated. As manufactured by Homestead Finishing Products. Dilute as needed.
 - 5. Wiping Varnish with Polymerized Tung Oil as manufactured by Sutherland Welles Ltd.
 - 6. Wiping Varnish Sealer as manufactured by Sutherland Welles Ltd.
- C. Sandpaper
 - 1. 60 Grit aluminum oxide open coat "A" weight sandpaper.

2. 80 Grit aluminum oxide open coat "A" weight sandpaper.
 3. 120 Grit aluminum oxide open coat "A" weight sandpaper.
 4. 220 Grit aluminum oxide open coat "A" weight sandpaper.
 5. 320 Grit aluminum oxide open coat A weight sandpaper.
 6. 400 grit aluminum oxide open coast A weight sandpaper
- D. Masking Tape: 3M painter's masking tape 2".
- E. Putty: Wood filler, or other putty approved by the Architect.
- F. Paste Wax: Tinted paste wax, mixtures of micro crystalline wax, carnauba, and mild solvent, in paste form, such as:
1. Liberon Black Bison Fine Paste Wax available from Homestead Finishing Products or TALAS Bookbinding, Archival and Conservation Supplies. Color selection to be determined after mock-ups. White or clear paste wax are not acceptable and shall not be used.
- G. Transparent finish:
1. Spar Varnish: Helmsman Spar Urethane, or approved equal.
 2. For wood floors and stair treads to be stripped of existing coatings – Refer to specification section 096400 Wood Plank and Strip Flooring.
- H. Trace cloth.
- I. Clover cloth.
- J. Natural bristle brush,
- K. Cheesecloth.

PART 3 EXECUTION

3.1 FIELD CONDITIONS

- A. Take all necessary field measurements and verify all installation conditions prior to ordering and fabrication of material.
- B. Coordinate work with other trades as required during salvage and restoration operations.
- C. Power saws may not be used during removal of woodwork without approval by the Architect.

3.2 ALTERATION OF SALVAGED WOODWORK

- A. Placement of cuts and trimming of salvaged materials shall result in symmetrical arrangement of panels and repeats that retain the original proportions of the woodwork.
- B. Trimming and cutting of rails and stiles shall be made to retain original joint details.
- C. Miters and joints shall be cut cleanly and result in tight, hairline seams.

3.3 **W-R1:** PREP, PRIME AND REPAINT EXISTING WOOD ELEMENTS

- A. All work to be done by Trained & Certified EPA Lead Renovator.
- B. Provide and maintain adequate protection to all surrounding materials before starting the work. Provide adequate ventilation and exhaust before starting the work
- C. Remove all loose paint by scraping and sanding surface of painted wood to be refinished. Particular attention shall be given to joints between higher and lower areas of paint until a featheredge is achieved.
- D. Sand all surfaces of existing paint to provide a smooth even surface and per the requirements of the manufacturer of approved primer.
- E. For areas with heavily deteriorated paint, see W-R10.
- F. Deteriorated areas of wood requiring consolidation shall be stripped of all paint using the approved chemical paint stripper. See W-R7 for application of approved wood consolidant.
- G. At areas where wood knots are visible, apply one (1) coat of knot sealer recommended by topcoat manufacturer.
- H. Apply lead barrier compound at areas of paint loss to seal paint edges.
- I. Prime edges, ends, faces and undersides of wood with approved primer, per manufacturer's recommendations.
- J. Fill holes and imperfections in the finish surfaces with approved putty or approved plastic wood filler to provide an even surface. Sand smooth when dried.
- K. Apply two (2) coats of approved topcoat in approved color.
- L. Any telegraphing of existing paint deterioration including flaking, cracking, etc. shall be unacceptable and will require the Contractor to redo the work until an acceptable even finish is achieved. Work redone due to insufficient or improper preparation shall be at no cost to the Client and to the satisfaction of the Architect. Refer to G-100-series sheets for photos of acceptable and unacceptable levels of finish.

3.4 **W-R2: CRACK REPAIR**

- A. Clean and prepare surface of existing wood element at area to be repaired per manufacturer's recommendations.
- B. Where required by manufacturer, apply approved borate preservative treatment liberally, using a natural fiber brush.
- C. Provide approved epoxy wood filler following all manufacturer's recommendations.
- D. Allow epoxy wood filler to cure for at least 24 hours or as recommended by manufacturer of approved product.
- E. After epoxy wood filler has cured, sand the exposed surface smooth and flush with adjacent wood, taking care to avoid voids in the filler, and shaping it to match the contour of the adjacent wood surface.
- F. Provide approved finish after all repairs are complete.

3.5 **W-R3: PARTIAL REPLACEMENT (DUTCHMAN REPAIR)**

- A. Provide dutchman repairs at deteriorated wood areas as follows:
 - 1. At exterior and interior wood elements: at areas 3"x1" or larger.
At doors: at areas ½ "x ½" or larger.
- B. Neatly cut out deteriorated material leaving enough sound wood to bond dutchman to sound substrate. Ensure edges of the void in existing wood have square corners and edges.
- C. Cut wood dutchman to exactly fit void, with exposed portion to match original profile and wood grain direction.
- D. Secure dutchman with waterproof adhesive and clamp in place per manufacturer's recommendations until glue is set. Wood dowels may be used for dutchman repairs larger than 4" x 4". For frames and wood trim, use wood nails to match existing.
- E. Where necessary to cut off an end of a component and install dutchman, use a diagonal scarf joint for end-to-end joints.
- F. Sand wood surface in and around dutchman repair to provide a smooth surface.
- G. Provide approved finish after all repairs are complete.

3.6 **W-R4: REPLACE DETERIORATED ELEMENT**

- A. Carefully remove deteriorated element to avoid damaging existing adjacent woodwork to remain.

- B. Protect newly-exposed substrate from exposure to water or any other damaging elements.
- C. Provide new wood element to match existing in wood species, profile, size, thickness, configuration, etc.
- D. Install new wood element to original location using approved fasteners to match existing. Provide blocking as required.
- E. Plane component edges as required to fit properly into existing work.
- F. Install new or repaired trim and casing, adjusting for proper fit.
- G. Provide approved finish after all repairs are complete.

3.7 **W-R5: PATCH WOOD ELEMENT**

- A. Provide patch repairs at deteriorated wood areas as follows:
 - 1. At exterior and interior wood elements: at areas smaller than 3"x1" only.
 - At doors: at areas smaller than ½ "x ½ " only.
- B. Remove any loose or deteriorated wood portions.
- C. Clean and prepare surface of existing wood element at area to be repaired per manufacturer's recommendations.
- D. Where required by manufacturer, apply approved borate preservative treatment liberally, using a natural fiber brush.
- E. Provide approved epoxy wood filler following all manufacturer's recommendations.
- F. Allow epoxy wood filler to cure for at least 24 hours or as recommended by manufacturer of approved product.
- G. After epoxy wood filler has cured, sand the exposed surface smooth and flush with adjacent wood, taking care to avoid voids in the filler, and shaping it to match the contour of the adjacent wood surface.
- H. Provide approved finish after all repairs are complete.

3.8 **W-R6: REFASTEN SUBFLOOR AND REPLACE MISSING BOARDS**

- A. At subfloor - re-anchor loose or detached subfloor boards using approved galvanized steel flooring nails installed using a pneumatic nailer or approved anchors to match existing.
- B. At areas where existing subfloor panel is deteriorated or missing, provide new pine hardwood floorboard panel to match existing adjacent.

- C. Clean and prep repaired subfloor to receive indicated finish. Refer to finish schedule for indicated floor finish.
- D. At existing nail holes, spot fill with approved wood filler in a color to match adjacent floorboards after refinishing.

3.9 **W-R7: CONSOLIDATE DETERIORATED AREA**

- A. Remove existing paint or clear coat finish from area to be repaired. See W-R10 for removing existing coatings.
- B. Remove loose or deteriorated wood until sound wood is reached.
- C. Clean bare wood and apply borate preservative treatment liberally using a natural fiber brush.
- D. Allow wood to dry completely.
- E. Apply approved epoxy wood consolidant following all of the manufacturer's recommendations.
- F. Provide approved finish after all repairs are complete

3.10 **W-R8: REMOVE UNUSED ANCHOR AND PATCH**

- A. Remove abandoned anchors, brackets, and other extraneous items no longer in use unless indicated to remain.
- B. Remove items carefully to avoid cracking or damaging the wood by unscrewing or pulling unused anchor away from the wood.
- C. Patch the hole where each item was removed using approved wood fill patch material.
- D. Sand patch surface smooth and flush with adjacent wood, without voids in patch material and matching contour of wood member.
- E. Provide approved finish after all repairs are complete.

3.11 **W-R9: ADDITIONAL PREP TO EXISTING PAINT FINISH TO PROVIDE AN EVEN SURFACE PRIOR TO REFINISHING**

- A. All work to be done by Trained & Certified EPA Lead Renovator.
- B. Provide and maintain adequate protection to all surrounding materials before starting the work. Provide adequate ventilation and exhaust before starting the work

- C. Remove all loose paint by scraping and sanding surface of painted wood to be refinished. Particular attention shall be given to joints between higher and lower areas of paint until a featheredge is achieved.
- D. At areas with uneven paint buildup where the distance between higher and lower paint surfaces are 1/16" or more - sand the surface of the paint with a combination of sandpaper grits until the uneven buildup of paint is rendered smooth and even. Sandpaper grits shall range between 60 grit and 120 grit. Sanding of heavy paint building shall start with the coarser grit followed by a finer grit.
- E. Vacuum all sanded surfaces to remove dust and debris left behind after sanding.
- F. Once an acceptable smooth surface is achieved, refinish painted woodwork per W-R1.
- G. Telegraphing of existing paint deterioration including flaking, cracking, etc. shall be unacceptable and will require the Contractor to redo the work until an acceptable even finish is achieved. Work redone due to insufficient or improper preparation shall be at no cost to the Client and to the satisfaction of the Architect. Refer to G-100-series sheets for photos of acceptable and unacceptable levels of finish.

3.12 **W-R10: REMOVE EXISTING COATINGS AND PROVIDE CLEAR COAT FINISH**

- A. All work to be done by Trained & Certified EPA Lead Renovator.
- B. Provide and maintain adequate protection to all surrounding materials before starting the work. Provide adequate ventilation and exhaust before starting the work. Follow all manufacturer's instructions.
- C. Strip all wooden components using approved paint stripper.
- D. Lightly sand surfaces with a 220-grit sandpaper. Sand selectively in order to not remove the patina of the wood. Sanding aggressively could result in a more splotchy appearance, creating more of a need for additional toning.
- E. Make carpentry repairs as needed. (See previous items.)
- F. Water pop or de-whisker: saturate wood with distilled water and let dry. Scuff sand surface removing raised fibers only with 220-grit sandpaper until a completely smooth surface is achieved.
- G. Stain wood using approved stain. Let dry completely.
- H. Apply a thin coat of approved spar urethane using a natural bristle brush.
- I. Let dry completely as recommended by manufacturer, then sand entire surface lightly with 220-grit sandpaper to ensure an even finish and proper adhesion of additional coats.

- J. Apply a second coat; repeat step H above.
- K. Apply a third coat.

3.13 WOODWORK RESTORATION

- A. General: Repair all woodwork shown on the drawings using methods specified in this section. Repair work includes all work necessary and is not limited to specific items noted on the Drawings.
- B. Wood Components, General: Replace all missing. Finished woodwork shall be fully intact and structurally sound. Patch holes, indentations gouges, etc. using wood filler for holes less than 1" x 1" x 1/2" deep and wood dutchmen for holes larger than 1" x 1" x 1/2" deep.
- C. Remove and Label Existing Hardware and Fixtures
 - 1. Remove all extraneous nails, staples, bolts, hooks, etc. from woodwork. For painted work, fill resulting holes, gouges and indentations, and sand smooth with approved filler material. For work with transparent finishes, use approved filler material for small holes, or new wood inserts for large holes and imperfections.
 - 2. Protect openings in the work from weather. Dry all wood to moisture content below 17% or as required based on wood species, whichever is more stringent.
- D. See drawings for locations to be:
 - 1. stripped and refinished, and
 - 2. for locations to be cleaned, conserved and refinished
- E. Finish product:
 - 1. Provide a uniform appearance in color, texture and finish across all woodwork in the scope, including refinishing of existing and coordination with all new woodwork.

3.14 INSTALLATION OF REPAIRED COMPONENTS

- A. Install existing components in original locations after restoration and installation of new blocking as required. Do not allow units to be installed in non-original locations.
- B. Install components on blocking using approved fasteners.
- C. Plane component edges as required to fit properly into existing work.
- D. Install new or repaired trim and casing, adjusting for proper fit.

3.15 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and moveable components to ensure proper operation and function of every unit.
- B. Lubricate moving parts including hinges with machine oil. Replace elements that cannot be adjusted and lubricated to operate freely and smoothly for the application made.
- C. Clean new and existing finish hardware.

END OF SECTION

SECTION 061000 WOOD FRAME CONSTRUCTION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the wood frame construction, as shown on the drawings and/or specified herein, including but not limited to the following:
 - 1. Exterior wall framing with plywood sheathing.
 - 2. Interior partition framing, except where metal studs are used.
 - 3. Floor framing with plywood subfloor and underlayment.
 - 4. Ceiling framing.
 - 5. Roof framing with plywood sheathing.
 - 6. Blocking and rough hardware.
 - 7. Refer to Structural Drawings for all structural requirements.

1.3 RELATED SECTIONS

- A. Carpentry - Section 062000.
- B. Thermal Insulation - Section 072100.
- C. Gypsum Drywall - Section 092900.

1.4 REFERENCES

- A. Lumber Standards: Comply with PS 20 and with applicable rules of the respective grading and inspecting agencies for species and products used.
- B. Plywood Product Standards: Comply with PS 1 (ANSI A 199.1) or, for products not manufactured under PS 1 provisions, with applicable APA Performance Standard for type of panel specified.

1.5 SUBMITTALS

- A. Shop Drawings: For all specially fabricated rough hardware.
- B. Wood Treatment Data: Submit treatment manufacturer's instructions for proper use of each type of treated material.

1. Pressure Treatment: For each type specified, include certification by treating plant stating chemicals and process used, net amount of preservative retained and conformance with applicable standards. Include statement that moisture content of treated materials was reduced to a maximum of 19% prior to shipment.

1.6 PRODUCT HANDLING

- A. Delivery and Storage: Keep materials dry at all times. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber and plywood and provide air circulation within stacks.
- B. Provide proper facilities for handling and storage of materials to prevent damage to edges, ends, and surfaces.

1.7 JOB CONDITIONS

- A. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nails, blocking, grounds and similar supports to allow proper attachment of other work.
- B. Environmental Requirements: Maintain uniform moisture content of lumber at not more than 19 percent during and after installation.
- C. New lumber adjacent and connected to existing lumber shall have a moisture content of not more than 15 percent at the time of installation.
- D. Sequencing, Scheduling: Coordinate details with other Work supporting, adjoining or fastening to rough carpentry Work.

1.8 TEMPORARY SUPPORT

- A. The structure as shown on the Contract Documents is designed to withstand the design loads only when all structural elements are installed and fully connected. The Contractor shall be responsible for the analysis of all components and assemblies for stresses and displacements that may be imposed by fabrication, shipping, handling, erection, temporary conditions, construction loads, etc. The analysis of such shall be performed by the Contractor's engineer.

PART 2 PRODUCTS

2.1 WOOD MATERIALS

- A. Rough Carpentry:
 1. Sills on Concrete: Douglas Fir with Preservative Treatment.
 2. Lumber (Wood Framing): Material grade shall be as shown on the drawings.
 3. Plywood: Provide thickness, grade, and panel identification index shown on drawings. For plywood thickness 15/32 or greater provide a minimum of 5 ply.
- B. Rough Hardware: All exterior hardware shall be hot-dipped galvanized.

1. Nails: Common wire per ASTM F1667, typical; hot-dipped zinc-coated galvanized, stainless steel, silicon bronze, or copper at exposed conditions, fire-retardant-treated, and preservative-treated lumber.
2. Expansion Bolts: Reverse cone, self-wedging, expansion type, Tightening of nut or increased tension on bolt shank shall act to force wedges outward to create positive increased resistance to withdrawal, Simpson Strong-Bolt, Hilti Kwik-Bolt TZ, or equal product substituted per Section 01630.
3. Metal Framing Connectors: Fabricate from hot-dipped galvanized steel (G90 coating). Connectors in contact with preservative-treated lumber shall have G185 hot dipped galvanized coating per ASTM A653. Connectors in contact with fire-treated lumber or are in high corrosive environments shall be manufactured with Type 316L stainless steel. Connectors shall be at least 16-gauge material, 1/8-inch plate materials where welded, unless otherwise shown or specified, punched for nailing. Nails and nailing shall conform to the manufacturer's instructions, including coating and material where applicable, with a nail provided for each punched nail hole. Use maximum nail size listed by manufacturer. Manufactured by Simpson Company or equal product substituted per Section 01630.
4. Miscellaneous Hardware: Provide all common screws, bolts, fastenings, washers and nuts required to complete rough carpentry Work.
5. Bolts and sill bolts in wood shall be ASTM A307 with standard cut threads; full diameter bolts (no rolled or "upset" threads permitted) per ANSI/ASME standard B18.2.1.
6. Fasteners used for attachment of exterior wall coverings shall be hot-dipped, zinc-coated galvanized steel, mechanically deposited zinc-coated steel, stainless steel, silicon bronze, or copper. The coating weights for hot-dipped zinc-coated fasteners shall be in accordance with ASTM A153. The coating weights for mechanically deposited zinc-coated fasteners shall be in accordance with ASTM B695, Class 55 minimum.

C. Lumber, General

1. Factory-mark each piece of lumber with type, grade, mill and grading agency, except omit marking from surfaces to be exposed with transparent finish or without finish.
2. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
3. Provide seasoned lumber with 19% max. moisture content at time of dressing.

D. Laminated-Veneer Lumber (LVL): Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.

1. Allowable Stresses

- a. Extreme Fiber Stress in Bending, Edgewise (Fb): 2600 psi for 12-inch nominal-depth members.
- b. Modulus of Elasticity, Edgewise (E): 2,000,000 psi.
- c. Modulus of Elasticity, Edgewise (Em): 980,000 psi.

- d. Modulus of Elasticity, Edgewise (Fv): 285 psi.
 - e. Modulus of Elasticity, Edgewise (Ft): 1,895 psi.
 - f. Allowable Compression Stress, Parallel to the Grain (Fe): 2,510.
- E. Framing Lumber and Miscellaneous Lumber (2" through 4" thick and less than 6" wide): For light framing and miscellaneous lumber (furring, grounds, blocking), provide No. 2 grade lumber for stud framing and "Standard" grade for other light framing, any species.
- F. Structural Framing (2" through 4" thick and 6" or wider): Refer to Structural Drawings.
- G. Plywood
 - 1. For roof sheathing, provide APA Structural 1 Rated Sheathing, Exposure 1, with span rating to suit joist or truss spacing; thickness as noted on drawings.
 - 2. For wall sheathing, provide APA Structural 1 Rated Sheathing, Exposure 1, with span rating to suit stud spacing; thickness as noted on drawings.
 - 3. For subflooring, provide tongue and groove APA Sturd-I-Floor, Exposure 1, with span rating to suit joist spacing; thickness as noted on drawings.
 - 4. For underlayment over subflooring, provide APA Underlayment INT with exterior glue, thickness as noted on drawings.
- H. Pressure treat wood sills, sleepers, blocking, furring, stripping and similar concealed members in contact with masonry or concrete, using water-borne preservatives complying with AWP A U1. After treatment, kiln dry to a max. moisture content of 19%.
 - 1. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment.

2.2 MISCELLANEOUS MATERIALS

- A. Air Barrier: See Section 072727.
- B. Termite Shield: 26 ga. galvanized steel sheet.

2.3 TREATMENTS

- A. Fire Retardant Treatment: Furnish in accordance with AWP A Standards T1, U1, and P17, "Fire Retardant Formulations".
- B. Preservative Treatment: Furnish in accordance with AWP A Standards T1 and U1. Preservatives with an ammonia base, including Ammoniacal Copper Zinc Arsenate (ACZA) are not permitted.

2.4 FABRICATION

- A. Preparation
 - 1. Verify measurements at job site.

2. Verify details and dimensions of equipment and fixtures integral with finish carpentry for proper fit and accurate alignment.
3. Coordinate details with other work supporting, adjoining, or fastening to casework.

B. Lumber

1. Air- or kiln-dry to maximum 19 percent moisture content at time of surfacing.
2. Furnish surfaced four side, S4S, unless otherwise noted.
3. Size to conform with rules of governing standard. Sizes shown are minimal unless otherwise noted.

C. Wood Treatments

1. Fire Retardant Treatment: Treat in accordance with AWPAs Standards T1 and U1, and approved manufacturer's recommendations. Verify AWPAs Use Category with proposed application prior to selected preservative. Fire-treated lumber shall conform to the requirements of CBC Section 2303.2.
2. Preservative Treatment: Treat lumber and plywood that is:
 - a. In contact with concrete and masonry less than six feet above the ground.
 - b. Exposed to weather permanently.
 - c. Where specified in the Contract Documents.
3. Treat in accordance with AWPAs Standards T1 and U1. Verify AWPAs Use Category with proposed application prior to selecting preservative.
4. Treated lumber shall be marked per CBC Section 2303.1.8.1.
5. After treatment, and prior to shipping, air- or kiln-dry lumber to maximum 19 percent moisture content.

2.5 SOURCE QUALITY CONTROL

- A. Lumber shall bear grade trademark or be accompanied by certificate of compliance of appropriate grading agency.
- B. Plywood shall bear APA grade trademark.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where wood frame construction is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

A. General

1. Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
2. Set carpentry work accurately to required levels and lines, with members plumb and true and accurately cut and fitted.
3. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards. Countersink nail heads on exposed carpentry work and fill holes.
 - a. Use common wire nails, except as otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.

B. Cutting: Perform all cutting, boring, and similar Work required.

C. Studs, Joists, Beams, and Posts: Install all members true to line. No wood shingle shims are permitted. Place joists with crown up; maximum 1/4-inch crown permitted.

D. Nail joints in accordance with applicable requirements of the NDS unless otherwise shown or specified. Predrill where nails tend to split wood. Nails into preservative-treated lumber shall be hot-dipped galvanized.

E. Bolt holes to be 1/16-inch oversize. Threads shall not bear on wood. Use standard malleable iron washers against wood. Carriage bolts require washers under the nut only.

F. Provide blocking, grounds, nailers, stripping, and backing as shown and as required to secure other Work.

G. Adjoining sheathing panel edges shall bear and be attached to the framing members. Nails shall be placed not less than 3/8-inch from the panel edge.

H. Plywood flooring shall be field glued with adhesive meeting APA specification AFG-01 applied in accordance with the manufacturer's recommendations. Apply continuous line of glue on joists and in groove of tongue and groove panels.

I. Protect preservative-treated and fire-treated lumber per APWA Standard M4, "Standard for the Care of Preservative-Treated Wood Products."

J. Where wood is cut, sawed, planed, bored or marred after preservative or fire-retardant treatment, apply two heavy brush coats of same material used in treatment.

K. Nail heads shall be driven flush with plywood surface. Overdriven nails (nails which fracture the outer ply layer) shall be replaced one for one.

- L. Screws (Wood or Lag): Screws shall be screwed and not driven into place. Screw holes for the unthreaded portion shall be predrilled to the same diameter and depth of shank. Holes for threaded portion shall be predrilled less than or equal to the diameter of the root of the thread. Provide standard cut washers under head of lag screws.
- M. Sheathing used for diaphragms and shear walls that are part of the seismic-force-resisting system shall be applied directly to framing members. Sheathing is permitted to be fastened over solid timber planking or laminated decking, provided the sheathing panel joints do not align with the planking or decking joints.
- N. Wood Grounds, Nailers, Blocking and Sleepers:
 - 1. Provide wherever shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.
 - 2. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise shown. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
 - 3. Provide permanent grounds of dressed lumber not less than 1-1.2" wide and of thickness required to bring face of ground to exact thickness of finish material involved.
- O. Wood Framing, General
 - 1. Provide framing members of sizes and on spacings shown, and frame openings as shown, or if not shown, comply with "Details for Conventional Wood Frame Construction" of AFPA. Do not splice structural members between supports.
 - 2. Anchor and nail to comply with the following minimum standards:
 - a. One inch brace to stud: Two 8d face nailed
 - b. Two inch brace to stud: Two 16d face nailed
 - c. At laps 12" min.: Four 16d face nailed
 - d. 1" furring to underside of joints: Two 8d (one straight; one slanted)
 - e. 2" furring to underside of joints: Two 16d (one straight; one slanted)
 - f. Refer to drawings for nailing schedule for all other locations.
 - 3. Firestop concealed spaces with wood blocking not less than 2" thick, if not blocked by other framing members. Provide blocking at each building story level and at ends of joist spans.
- P. Stud Framing
 - 1. General: Provide stud framing where shown. Unless otherwise shown, use 2" x 4" wood studs spaced 16" o.c. with 4" face perpendicular to direction of wall or partition. Provide single bottom plate and double-top plates 2" thick by width of studs; except single top plate may be used for non-load-bearing partitions. Nail or anchor plates to supporting construction.

2. Construct corners and intersections with not less than 3 studs. Provide miscellaneous blocking and framing as shown and as required for support of facing materials, fixtures, specialty items and trim.
3. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Set headers on edge and support on jamb studs.
 - a. For non-bearing partitions, provide double-jamb studs and headers not less than 4" deep for openings 3' and less in width, and not less than 6" deep for wider openings.
 - b. For load-bearing partitions, provide double-jamb studs for openings 6'-0" and less in width, and triple-jamb studs for wider openings. Provide headers of depth shown, or if not shown, provide as recommended by N.F.P.A. "Manual for House Framing."

Q. Joist Framing

1. General: Provide framing of sizes and spacings shown. Install with crown edge up and support ends of each member with not less than 1-1/2" of bearing on wood or metal, or 3" on masonry. Attach to wood bearing members by toe nailing or metal connectors; frame to wood supporting members with wood ledgers as shown, or if not shown, with metal connectors. Fire-cut members built into masonry (if any). Frame openings with headers and trimmers supported by metal joist hangers; double headers and trimmers where span of header exceeds 4'-0". Do not notch in middle third of joists; limit notches to 1/6-depth of joist, 1/3 at ends. Do not bore holes larger than 1/3-depth of joist or locate closer than 2" from top or bottom. Provide solid blocking (2" thick by depth of joist) at ends of joists unless nailed to header or band member.
2. Lap members framing from opposite sides of beams, girders or partitions not less than 4" or securely tie opposing members together. Provide solid blocking (2" thick by depth of joist) over supports.
3. Anchor members paralleling masonry with 1/4" x 1-1/4" metal strap anchors spaced not more than 8'-0" o.c. Extend anchors at least 4" into masonry, turn up 4" and extend over and fasten to 3 joists.
4. Under jamb studs at openings, provide solid blocking between joist.
5. Under non-load-bearing partitions, provide double joists separated by solid blocking equal to depth of studs above. Provide triple-joists separated as above, under partitions receiving ceramic tile and similar heavy finishes or fixtures, unless otherwise shown.
6. Provide bridging between joists where nominal depth-to-thickness ratio exceeds 4, at intervals of 8'-0". Use bevel cut 1" x 4" or 2" x 3" wood bracing, double-crossed and nailed both ends to joists, or use solid wood bridging 2" thick by depth of joist, end nailed to joist.

R. Rafter and Ceiling Joist Framing

1. Ceiling Joists: Provide member size and spacing shown, and as previously specified for joist framing. Face nail to ends of parallel framing members.

2. Rafters: Provide member size and spacing shown. Notch to fit exterior wall plates and toe nail or use special metal framing anchors. Double rafters to form heads and trimmers at openings in roof framing (if any), and support with metal hangers. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.
 - a. At valleys, provide valley rafter of size shown, or if not shown, provide rafter twice as thick as regular rafters and 2" deeper. Bevel ends of jack rafters for full bearing against hip rafters.
3. Provide collar beams (ties) as shown, or if not shown, provide 1" x 6" boards between every third pair of framing members. Locate below ridge member, one-third of distance to ceiling joists. Cut ends to fit slope and nail to framing.
4. Provide special framing as shown for eaves, overhangs, dormers and similar conditions, if any.

S. Plywood Roof Sheathing

1. Install plywood roof sheathing with long dimension across supports, using panels continuous over 2 or more spans with end joints between panels staggered and located over center of supports.
 - a. Nail 6" o.c. along panel edges and ends and 12" o.c. at intermediate supports for spans less than 48" using 6d common nails for panels 1/2" or less, 8d common nails for panels over 1/2" but less than 1" thick, and 8d ring shank or spiral thread nails or 10d common nails for panels 1" or more thick. For spans 48" or greater, space nails 6" o.c. at all supports.
 - b. Provide support at unsupported long edges with "Plyclips" or wood blocking.
2. Allow 1/8" open space between end joints and 1/4" open space between edge joints for expansion and contraction of panels.

T. Plywood Wall Sheathing

1. Install plywood wall sheathing horizontally or vertically using panels continuous over 2 or more spans. Nail edges and ends over supports at 6" o.c. and at 12" o.c. over intermediate studs using 6d nails for panels not more than 1/2" thick and 8d nails for thicker panels. Allow 1/8" spacing at panel ends and 1/4" at panel edges.
2. Over sheathing apply one layer of building paper as specified herein.

U. Plywood Flooring

1. Sub-Floor: Install T & G plywood with the long dimension of the panel across supports and with panel continuous over two or more spans. Panel end joints shall occur over framing. Allow 1/8" spacing at panel ends and edges. Nail 6" o.c. along panel edges and 10" o.c. at intermediate supports with 6d common nails for 1/2" panels, 8d for greater thicknesses. Where panels are 1-1/8" or 1-1/4" thick and supports are 48" o.c., nails shall be 8d ring-shank or 10d common and spaced 6" o.c. at all supports.

2. Underlayment: Panels to receive resilient floor coverings shall have edge joints filled and thoroughly sanded. Apply underlayment just prior to laying finish floor and protect against damage until finish floor is installed. Stagger panel end joints with respect to each other and offset all joints with respect to the joints in the subfloor. Butt panel ends and edges to a close but not tight fit (allow 1/32" space). Nail 6" o.c. along panel edges and 8" o.c. each way throughout remainder of panel with 3d ring-shank nails for thicknesses 1/3" or less, 4d for 5/8" and 3/4", or use 15 ga. staples at 3" o.c. along panel edges and 6" o.c. each way. Staple length must be sufficient to penetrate at least 5/8" into or completely through, subflooring. Lightly sand any surface roughness, particularly at joints and around nails.

END OF SECTION 061000

SECTION 061005 WOOD STAIR CONSTRUCTION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the wood stair construction, as shown on the drawings and/or specified herein, including but not limited to the following:

1. Stair framing and treads.
2. Blocking and rough hardware.

1.3 RELATED SECTIONS

- A. Miscellaneous Metals - Section 055000.
- B. Wood Frame Construction - Section 061000.
- C. Carpentry - Section 062000.
- D. Gypsum Drywall - Section 092900.
- E. Restoration Treatment for Historic Woodwork – Section 060312.

1.4 REFERENCES

- A. Lumber Standards: Comply with PS 20 and with applicable rules of the respective grading and inspecting agencies for species and products used.
- B. Plywood Product Standards: Comply with PS 1 (ANSI A 199.1) or, for products not manufactured under PS 1 provisions, with applicable APA Performance Standard for type of panel specified.

1.5 SUBMITTALS

- A. Shop Drawings: For all specially fabricated rough hardware.
- B. Wood Treatment Data: Submit treatment manufacturer's instructions for proper use of each type of treated material.
 1. Pressure Treatment: For each type specified, include certification by treating plant stating chemicals and process used, net amount of preservative retained and conformance with applicable standards. Include statement that moisture content of treated materials was reduced to a maximum of 19% prior to shipment.

1.6 PRODUCT HANDLING

- A. Delivery and Storage: Keep materials dry at all times. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber and plywood, and provide air circulation within stacks.

1.7 JOB CONDITIONS

- A. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nails, blocking, grounds and similar supports to allow proper attachment of other work.
- B. Environmental Requirements: Maintain uniform moisture content of lumber at not more than 19 percent during and after installation.
- C. New lumber adjacent and connected to existing lumber shall have a moisture content of not more than 15 percent at the time of installation.
- D. Sequencing, Scheduling: Coordinate details with other Work supporting, adjoining or fastening to rough carpentry Work.

1.8 TEMPORARY SUPPORT

- A. The structure as shown on the Contract Documents is designed to withstand the design loads only when all structural elements are installed and fully connected. The Contractor shall be responsible for the analysis of all components and assemblies for stresses and displacements that may be imposed by fabrication, shipping, handling, erection, temporary conditions, construction loads, etc. The analysis of such shall be performed by the Contractor's engineer.

1.9 WARRANTY

- A. Comply with General Conditions, agreeing to repair or replace specified materials or Work that has failed within the warranty period.

PART 2 PRODUCTS

2.1 WOOD MATERIALS

- A. Lumber, General
 - 1. Factory-mark each piece of lumber with type, grade, mill and grading agency, except omit marking from surfaces to be exposed with transparent finish or without finish.
 - 2. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
 - 3. Provide seasoned lumber with 19% max. moisture content at time of dressing.
- B. Laminated-Veneer Lumber (LVL): Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored in accordance with ASTM D5456, and manufactured with exterior-type adhesive complying with ASTM D2559.

1. Allowable Stresses:

- a. Extreme Fiber Stress in Bending, Edgewise (Fb): 2600 psi for 12-inch nominal- (286-mm actual-) depth members.
- b. Modulus of Elasticity, Edgewise (E): 2,000,000 psi (13 700 MPa).
- c. Minimum Modulus of Elasticity (Em): 980,000 psi (6 757 MPa).
- d. Horizontal Shear (Fv): 285 psi (1.97 MPa).
- e. Tension Parallel to Grain (Ft): 1,895 psi.
- f. Allowable Compression Stress, Parallel to the Grain (Fc): 2,510.

C. Framing Lumber & Miscellaneous Lumber (2" through 4" thick and less than 6" wide):

- 1. For light framing and miscellaneous lumber (furring, grounds, blocking), provide No. 2 grade lumber for stud framing and "Standard" grade for other light framing, any species.

D. Structural Framing (2" through 4" thick and 6" or wider):

- 1. For structural framing, provide No. 2 Grade of Hem-Fir or any species which meets or exceeds the property values of No. 2 Hem-Fir.

E. Pressure treat wood sills, sleepers, blocking, furring, stripping and similar concealed members in contact with masonry or concrete, using water-borne preservatives complying with AWP A U1. After treatment, kiln dry to a max. moisture content of 19%.

- 1. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment.

2.2 MISCELLANEOUS MATERIALS

- A. Wood treads and risers: Solid Select White Oak, single piece, thickness as detailed on drawings.
- B. Fasteners: Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices.
- C. Where rough carpentry work is exposed to weather or in ground contact, provide fasteners and anchorages with a hot-dip zinc coating (ASTM A 153).

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where wood stair construction is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. General

1. Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
2. Set carpentry work accurately to required levels and lines, with members plumb and true and accurately cut and fitted.
3. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards. Countersink nail heads on exposed carpentry work and fill holes.
 - a. Use common wire nails, except as otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.

B. Wood Grounds, Nailers, Blocking and Sleepers:

1. Provide wherever shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.
2. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise shown. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
3. Provide permanent grounds of dressed lumber not less than 1-1.2" wide and of thickness required to bring face of ground to exact thickness of finish material involved.

C. Wood Framing, General

1. Provide framing members of sizes and on spacings shown, and frame openings as shown, or if not shown, comply with "Details for Conventional Wood Frame Construction" of AFPA. Do not splice structural members between supports.
2. Anchor and nail to comply with the following minimum standards:
 - a. Blocking to joist bearing: Two 10d toenailed each side
 - b. Blocking to joist or stud: Two 10d toenailed each side
 - c. One inch brace to stud: Two 8d face nailed
 - d. Two inch brace to stud: Two 16d face nailed
 - e. Bridging to joint: Two 8d toenailed
 - f. Built-up beams 8" or less in depth: 16d at 12" o.c., staggered
 - g. Joists and rafters to support: Two 10d toenailed each side
 - h. At laps 12" min.: Four 16d face nailed
 - i. Multiple joists: 16d at 12" o.c., staggered
3. Firestop concealed spaces with wood blocking not less than 2" thick, if not blocked by other framing members. Provide blocking at each building story level and at ends of joist spans.

D. Stair Framing

1. Provide stair framing members as required to support a min. uniform live load of 100 psf and a min. concentrated load of 300 lbs. applied to an area of 4 sq. inches at center of tread. Fabricate stair framing members to provide exact fit with treads and risers with no change in dimensions between landings. Apply Oak treads and risers to frame.

END OF SECTION

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PART 1 - GENERAL

A. Work of this Section shall conform to requirements of Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections.

A. The work covered by this Section shall include all labor, material, equipment, permits, engineering and other services necessary for the fabrication and installation of wood decking and related work, complete, in accordance with the Drawings and as specified herein.

A.	General Conditions	Section 01 00 00
B.	Concrete	Section 03 30 00

A. Building Code: Wood decking shall conform to the requirements of the Building Code identified on the Structural General Notes except where more stringent conditions or criteria occur in the standards referenced below and on the Drawings.

B. Standards

1. American Society for Testing and Materials International (ASTM)
2. ASTM A653/A653M-08, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated by the Hot-Dip Process.
3. Canadian Standards Association International (CSA)
4. ASTM F1667, Standard Specification for Driven Fasteners
5. ASTM A992, Standard Specification for Steel for Structural Shapes For Use in Building Framing
6. ASTM A123, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
7. AWC National Design Specification
8. ASTM D2559, Standard Specification for Adhesives for Bonded Structural Wood Products for Use Under Exterior Exposure Conditions
9. US Department of Commerce PS-20, American Softwood Lumber Standard

10. National Lumber Grades Authority (NLGA)
11. AWWA Standard T1 – “Processing and Treatment Standard”
12. AWWA Standard U1 – “Use Category System: Use Specification for Treated Wood”

C. Definitions:

1. The term “Contract Documents” in this Specification is defined as the design Drawings and the Specifications.
2. The term “SER” in this Specification is defined as the Structural Engineer of Record for the structure in its final condition.
3. The term “Design Professionals” in this Specification is defined as the Owner’s Architect and SER.
4. The term “Contractor” in this Specification is defined to include any of the following: General Contractor and their sub-contractors, Construction Manager, Structural Steel Fabricator or Structural Steel Erector.
5. The term “Testing Agency” in this Specification is defined as an independent testing and inspection service engaged by the Owner for quality assurance observation and testing of steel construction in accordance with applicable building code provisions and any additional activities listed in the Contract Documents.
6. The terms “for record” and “submit for record” in this Specification are defined as Contractor submittals that do not require a response from the Design Professionals.
7. The term “Working Days” in this Specification is defined as Monday through Friday, except for federal or state holidays.
8. The term “Delegated Design” in this Specification is defined as a scope of work that meets performance and design criteria established in the Contract Documents and is to be completed by the Contractor’s licensed engineer.

1.5 SUBMITTALS

- A. Submit Shop drawings showing complete layout, fabrication, and erection drawings. Drawings shall show all members, including shop cuts and holes, dimensions, laminations, scarfing, adhesive type, moisture content, lumber grade and finish.
- B. Sample of Preservative-treated lumber to architect/engineer for color and appearance.
- C. Substitution Request
 1. Requests for any departure from Contract Documents must be submitted in writing by the Contractor and accepted in writing by the Design Professionals, prior to receipt of submittals.

2. Such substitutions or modifications, if acceptable to the Design Professionals shall be coordinated and incorporated in the work at the sole expense of the Contractor.
3. The acceptance by the Design Professionals of a specific and isolated request by the contractor to deviate from these requirements does not constitute a waiving of that requirement for other elements of, or locations in the project, unless specifically addressed as such and permitted by the Design Professionals in writing.
4. Compensation for Additional Services: Should additional work by Design Professionals such as design, documentation, meetings and/or site visits be required which are necessitated for the review and/or incorporation of the Contractor-requested substitution, including indirect effects on other portions of the work, the Contractor is responsible for paying for additional work performed by the Design Professionals at the standard billing rates plus out-of-pocket expenses incurred at cost + 10%. Additional costs for testing and inspection by the Owner shall also be compensated by the Contractor.
5. Contractor is responsible for means and methods and any impacts on other portions of the work that may arise from this substitution.

1.6 TEMPORARY SUPPORT

- A. The structure as shown on the Contract Documents is designed to withstand the design loads only when all structural elements are installed and fully connected. The contractor shall be responsible for the analysis of all components and assemblies for stresses and displacements that may be imposed by fabrication, shipping, handling, erection, temporary conditions, construction loads, etc. The analysis of such shall be performed by the Contractor's Engineer.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver members to site until adequate preparation for storage is made. Do not erect members until preparation to receive are completed including installation of miscellaneous metal and connecting hardware.
- B. Store member on support not less than 12" (300mm) above ground or one and 1-1/2" (38mm) above concrete slab on grade.

1.8 QUALITY ASSURANCE

- A. Source Quality Control: Contractor quality assurance procedures to include following verification.
 1. Species, grade and slope of grain of lumber meets specification.
 2. Moisture content meets specifications.
- B. Installation Quality Control: Contractor quality assurance procedures to include following verification.

1. Inspection of installation and fit-up including confirmation that end joints are located and staggered as specified.
2. Inspection of nailing including confirmation that size and spacing of nailing is in accordance with Contract Documents.

1.9 WARRANTY

- A. Warranty: Comply with General Conditions, agreeing to repair or replace specified materials or Work that has failed within the warranty period.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Dimensional Lumber: Conforming to PS-20. Grade marked to conform to PS-20 kiln dried; select structural grade SPF (spruce, pine, fir). Moisture content not to exceed 19% at time of manufacture and installation. Unless noted otherwise, all lumber to be pressure treated.
- B. Wood decking: to PS-20 standard Grading Rules for American Lumber Commercial grade, Douglas Fir as noted on drawings, pre-drilled at 2' - 6" centres for lateral spiking, double tongue and groove and "Veed" one side. Kiln dry decking to 15% maximum moisture content.
- C. Exterior Wood decking: to PS-20 standard Grading Rules for American Lumber Commercial grade, WRCLA Western Red Cedar 5/4" x 6", Custom Clear grade, as noted on drawings and unseasoned with non-slip finish (antigloss). Kiln dry decking to 15% maximum moisture content.
- D. Decking lengths: 6' to 20" or longer with a minimum of 90% planks exceeding 13' - 4". Square end trimmed. For single spans shorter than 10' use decking of same length as span.
- E. Nails: to ASTM F1667, galvanized finish; sizes as recommended in NDS. Supply 8" spiral spikes for lateral nailing.
- F. Splines: galvanized metal, as supplied by decking manufacturer.
- G. Cold-formed Steel Connectors: Simpson Strong-tie as noted on plan or equal.
- H. Wood treatment:
 1. Apply 1 coat of wood preservative to decking after fabrication and before delivery.
 2. Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak.
 3. Retreat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

2.2 COATINGS

- A. Coat exposed exterior deck with solid waterproofing wood stain.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Work by Others: Examine all work prepared by others to receive work of this Section and report any defects affecting installation to Design Professionals. Commencement of work will be construed as complete acceptance of preparatory work by others. The Contractor alone shall be responsible for checking the dimensions and coordination of the structural steel work with other trades.

3.2 FABRICATION

- A. Fabrication shall be in accordance with the best shop practices, with adequate plant and equipment, and under the supervision of properly qualified personnel, and shall comply with the Standards established by the American Institute of Timber Construction.
- B. The fabricator shall provide adequate facilities and equipment so that laminations are prepared, selected, spread, laid-up, clamped and set within the adhesive manufacturer's specified time limit.

3.3 ERECTION

- A. General: Erection shall be in accordance with the best practices, with adequate personnel and equipment and under experienced, qualified supervision. Unless otherwise specified, erection shall conform with standards established by the American Institute of Timber Construction.
- B. Install wood decking in accordance with NDS, simple span pattern.
- C. Touch up any field cuts with preservative. Apply preservative to cut ends where pressure treated lumber is specified.

3.4 DEFECTIVE WORK

- A. Any errors in fabrication or erection shall be cause for rejection of the member or members. Any necessary corrections to make the work proper shall be at the contractor's expense.

END OF SECTION

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SECTION 062000 - CARPENTRY

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to this Section.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the carpentry work as shown on the drawings and/or specified herein, including but not limited to, the following:
 - 1. Blocking and miscellaneous wood.
 - 2. Plywood backing panels for telephone and electrical devices.
 - 3. Rough hardware.
 - 4. Installation only of finish hardware.
 - 5. Installation only of doors and hollow metal frames.

1.3 RELATED SECTIONS

- A. Architectural Woodwork - Section 064023.
- B. Wood Doors - Section 081416.
- C. Finish Hardware - Section 087100.
- D. Restoration Treatment for Historic Woodwork – Section 060312.

1.4 QUALITY ASSURANCE

- A. Lumber Standard: Comply with PS 20.
- B. Plywood Standard: Comply with PS 1 and American Plywood Assoc. (APA).
- C. Shop fabricate carpentry work to the extent feasible and where shop fabrication will result in better workmanship than feasible for on-site fabrication.
- D. Grade Marks: Identify lumber and plywood by official grade mark.
 - 1. Lumber: Grade stamp to contain symbol of grading agency certified by Board of Review, American Lumber Standards Committee, mill number or name, grade of lumber, species grouping or combination designation, rules under which graded where applicable, and condition of seasoning at time of manufacture.
 - a. MC-15 or KD: Maximum of fifteen (15) percent moisture content.

- E. Installation of doors, frames and hardware shall conform to the minimum standards of “Installation Guides for Doors and Hardware” of the Door and Hardware Institute.

1.5 SUBMITTALS

- A. Pressure Treatment: Include certification by treating plant stating chemicals and process used, net amount of salts retained and conformance with applicable standards.
- B. Fire-Retardant Treatment: Include certification by treating plant that treatment material complies with governing ordinances and that treatment will not bleed through finished surfaces.

1.6 PRODUCT HANDLING

- A. Deliver carpentry materials to the site ready to use with each piece of lumber clearly marked as to grade, type and mill, and place in an area protected from the elements.
- B. Deliver rough hardware in sealed kegs and/or other containers which shall bear labels as to type and kind.
- C. Pile lumber for rough usage, when delivered to the site in stacks to insure drainage and with a minimum clearance of six (6) inches above grade. Cover stacks with tarpaulins or other watertight coverings. Store grounds and similar small sized lumber inside the building as soon as possible after delivery.
- D. Do not store seasoned lumber in wet or damp portions of the building.
- E. Protect fire retardant treated materials against high humidity and moisture during storage and erection.
- F. Remove delivered materials which do not conform to specified grading rules or are otherwise not suitable for installation from the job site and replace with acceptable materials.
- G. All items specified in Section 087100 of this specification entitled "Finish Hardware" shall be received, accounted for, stored and applied under this Section.
- H. Hardware shall be sorted and stored in space assigned by Contractor and shall be kept at all times under lock and key. The safety and preservation of all items delivered will be the responsibility of the Contractor.

1.7 JOB CONDITIONS

- A. Installer must examine the substrates and supporting structure and the conditions under which the carpentry work is to be installed, and notify the Contractor in writing of conditions detrimental to the work. Do not proceed with the installation until unsatisfactory conditions have been corrected in a manner acceptable to the Installer and the Architect.
- B. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow proper attachment of other work.

PART 2 PRODUCTS

2.1 WOOD MATERIAL

A. General

1. All wood shall be sound, flat, straight, well-seasoned, thoroughly dry and free from all defects. Warped or twisted wood shall not be used.
2. For miscellaneous wood blocking, grounds, furring as required, use Utility Grade Coastal Douglas Fir or Southern Pine, free from knots, shakes, rot or other defects, straight, square edges and straight grain, air seasoned with maximum moisture content of nineteen (19) percent. Wood shall be S4S, S-Dry, complying with PS-20.
3. Plywood and rough carpentry for telephone and electrical closets, provide 3/4" thick C-D EXT-APA plywood, fire retardant treated as specified herein.

B. Wood Treatment

1. All interior wood material specified herein shall be fire retardant treated to comply with the AWPA standards (C20 for lumber, C27 for plywood) for pressure impregnation with fire retardant chemical to achieve a flame spread rating of not more than 25 (UL Class "FR-S") when tested in accordance with UL Test 723 or ASTM E 84. The fire-retardant chemicals used to treat the lumber must comply with FR-1 of AWPA Standard P17 and be free of halogens, sulfates and ammonium phosphate.
 - a. After treatment, kiln dry to a moisture content of fifteen (15) percent; if wood is to be painted or finished, kiln dry to a moisture content of twelve (12) percent. Treatment shall be equal to "Dricon" made by Arch Wood Protection Inc. or approved equal. Provide UL approved identification on treated materials.
2. For exterior blocking, roofing and sheet metal, pressure treat wood with copper azole, Type A (CBA-A); ammoniacal copper quat (ACQ) or similar preservative product that contains no arsenic or chromium. Preservative shall comply with AWPA Standard C-2 for lumber and C-9 for plywood, (.25 lbs./cubic foot of chemical in wood).
 - a. After treatment, kiln dry to a maximum moisture content of fifteen (15) percent. Treatment shall be equal to "Wolmanized Natural Select" made by Arch Wood Protection Inc. or approved equal.
3. Treated wood which is cut or otherwise damaged shall be further treated in accordance with the AWPA Standard M-4.

2.2 HARDWARE

- A. Rough Hardware for Treated Woods and Exterior Use: Hot-dipped galvanized or Type 304 stainless steel.
- B. Nails: Common steel wire, untreated for interior work as per ASTM F 1667.

- C. Bolts: Standard mild steel, square head machine bolts with square nuts and malleable iron or steel plate washers or carriage bolts with square nuts and cut washers conforming to the following:
 - 1. Bolts: ASTM A 307, Grade A.
 - 2. Nuts: ASTM A 563.
 - 3. Lag Screws and Bolts: ASME B 18.2.1.
- D. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
 - 2. Material for Treated Woods and Exterior Use: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.
- E. Wood Screws: ASME B 18.6.1.
- F. Concrete and Masonry Anchors: Standard expansion-shield self-drilling type concrete anchors where so shown or noted on the drawings, or where approved by the Architect.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where carpentry is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION OF FINISH HARDWARE

- A. All finishing hardware specified in Section 087100 of this specification entitled "Finish Hardware" shall be received, accounted for, stored and applied under this Section.
- B. Hardware shall be sorted and stored in space assigned by Contractor and shall be kept at all times under lock and key. The safety and preservation of all items delivered will be the responsibility of the Contractor.
- C. Hardware shall be carefully fitted and securely attached, in accordance with these specifications and the instructions of the various manufacturers.
- D. Unless otherwise noted, mount hardware units at heights established in DHI's "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- E. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into

surfaces which are later to be painted or finished in another way, install each item completely and then remove and store in a secure place during the finish application. After completion of the finishes, re-install each item. Do not install surface-mounted items until finishes have been completed on the substrate.

- F. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- G. Drill and countersink units which are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- H. Cut and fit threshold and floor covers to profile of door frames, with mitered corners and hair-line joints. Join units with concealed welds or concealed mechanical joints. Cut smooth openings for spindles, bolts and similar items, if any.
- I. All keys used shall be construction keys which are to be tagged with fiber discs as approved, clearly labeled with identifying inscriptions and then neatly arranged in a temporary cabinet. All construction keys shall be returned to the Owner.
- J. Adjusting and Cleaning
 - 1. Adjust and check each operating item of hardware and each door, to ensure proper operation and function of every unit. Lubricate moving parts with type lubrication recommended by manufacturer (graphite type if no other recommended). Replace units which cannot be adjusted and lubricated to operate freely and smoothly as intended for the application made.
 - 2. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make a final check and adjustment of all hardware items in such space or area. Clean and re-lubricate operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

3.3 INSTALLATION OF DOORS AND FRAMES

A. Preparation

- 1. Remove welded-in shipping spreaders installed at factory.
- 2. Prior to installation and with installation spreaders in place, adjust and securely brace standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.

3. Drill and tap doors and frames to receive non-templated mortised and surface-mounted door hardware.

B. Installation

1. General: Provide doors and frames of sizes, thicknesses, and designs indicated. Install steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
2. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. Install frames in accordance with ANSI 250.11-20001, Recommended Erection Instructions for Steel Frames, unless more stringent requirements are specified herein.
 - b. At fire-protection-rated openings, install frames according to NFPA 80.
 - c. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - d. Install frames with removable glazing stops located on secure side of opening.
 - e. Frames set in masonry walls shall have door silencers installed in frames before grouting.
 - f. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - g. Check plumb, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
3. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with post-installed expansion anchors.
 - a. Floor anchors may be set with powder-actuated fasteners instead of post-installed expansion anchors if so indicated and approved on Shop Drawings.
4. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames conforming to the requirements of Section 072100 – "Thermal Insulation."
5. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar; refer to Section 042000 - "Unit Masonry" for installation of frames in masonry walls.
6. In-Place Concrete or Masonry Construction: Secure frames in place with post-installed expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
7. In-Place Gypsum Board Partitions: Secure frames in place with post-installed expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.

8. Ceiling Struts: Extend struts vertically from top of frame at each jamb to supporting construction above, unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction above. Provide adjustable wedged or bolted anchorage to frame jamb members.
9. Installation Tolerances: Adjust steel door frames for squareness, alignment, twist, and plumb to the tolerance given in HMMA 841 of ANSI/NAAMM, current edition.
10. Glazing: Comply with installation requirements in Division 8 Section "Glass and Glazing" and with standard steel door and frame manufacturer's written instructions.
 - a. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c., and not more than 2 inches o.c. from each corner.

C. Wood Doors

1. Condition doors to average prevailing humidity in installation area prior to hanging.
2. Install doors in accordance with manufacturer's instructions.
3. Fit door to frames and machine for hardware to whatever extent not previously worked at factory as required for proper fit and uniform clearance at each edge.
4. Clearances: Install doors to meet clearance requirements specified in Section 081416.
5. Fire-Rated Doors: Install in corresponding fire-rated frames in accordance with the requirements of NFPA No. 80. Provide clearances complying with the limitations of the authority having jurisdiction.

- D. Adjustments: Check and readjust operating finish hardware items just prior to final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including doors or frames which are warped, bowed or otherwise unacceptable.

3.4 BLOCKING AND MISCELLANEOUS WOOD

A. General

1. Erect rough carpentry true to line, levels and dimensions required; squared, aligned, plumbed, and securely fastened in place.
2. Shim where required to true up furring, blocking and the like. Use wood or metal shims only.
3. Do all cutting, fitting, drilling and tapping of other work as required to secure work in place and to perform the work included herein. Do all the cutting and fitting of carpentry work, for the work of other trades as required.

B. Blocking and Miscellaneous Wood

1. Furnish and install all wood grounds, furring, blocking, curbs, bucks, nailers, etc., that may be necessary and required in connection with the carpentry and with the work described for

any other trades and including required carpentry for electrical fixtures. All blocking and nailers shall be continuous wherever required, whether or not so indicated.

2. Blocking shall be as required for the proper installation of the finished work and for items in mechanical sections as required. Blocking, edgings, stops, nailing strips, etc., shall be continuous, unless distinctly noted otherwise. Provide blocking as required to install all equipment. Provide blocking and nailers where shown or required to fasten interior sheet metal work.
3. Fastening for wood grounds, furring and blocking shall be of metal and of type and spacing as best suited to conditions. Hardened steel nails, expansion screws, toggle bolts, self-clinching nails, metal plugs, inserts or similar fastenings shall be used, of suitable type and size to draw the members into place and securely hold same.

C. Rough Lumber for Roofing and Sheet Metal

1. Furnish and install all wood nailing strips and wood blocking required in connection with respective types of roofing, fans, flashings, and sheet metal work, using preservative treated wood as herein before specified.
2. Wood blocking shall be of sizes and shapes as indicated on the drawings and/or designed for the reception of curb flashings for roof ventilators and similar items.
3. All nailing strips and blocking shall be carried out in accordance with the printed installation instructions, and/or recommendations of the accepted manufacturer of the roofing materials, and in coordination and cooperation with the sheet metal work trades.
4. All blocking and nailing strips shall be firmly secured in place using counter bored bolt and nut fastenings, or secured by any other proposed flush surfaced fastenings.
5. Wood nailing strips or blocking required to be embedded in concrete work shall be furnished in time due for placing, prior to start of concrete operations. Locations and spacings of nailing strips or blocking shall be performed in coordination with the concrete trades, as required for respective installations.

3.5 TELEPHONE AND ELECTRICAL EQUIPMENT MOUNTING BOARDS

- A. Furnish and install 3/4" thick plywood panels to the walls of the telephone and electrical equipment rooms in accordance with the requirements of the local utility company.
- B. Secure to wall using proper devices for substrates encountered, spaced twelve (12) inches o.c., maximum around the edges, 1-1/2" from corners, and in three (3) rows of three (3) each in the field. Recess fastening devices flush with the plywood surface. Adjacent panels shall be butted with 1/16" space between without lapping.

3.6 ROUGH HARDWARE

- A. Securely fasten rough carpentry together. Nail, spike, lag screw or bolt as required by conditions encountered in the field and the Contract Documents.

- B. Provide rough or framing hardware, such as nails, screws, bolts, anchors, hangers, clips, inserts, miscellaneous fastenings, and similar items of the best quality and of the proper size and kind to adequately secure the work together and in place, in a rigid and substantial manner.
- C. Secure rough carpentry to masonry with countersunk bolts in expansion sleeves or other acceptable manner, with fastenings not more than sixteen (16) inches apart. Secure woodwork to hollow masonry with toggle bolts spaced not more than sixteen (16) inches apart.
- D. Countersink bolts in nailers and other rough woodwork and include washers and nuts. Cut bolts off flush with surfaces and peen as may be required to receive finished work.
- E. Inserts to secure wood nailers to concrete shall be malleable iron threaded inserts with 3/8" diameter bolts of length to allow for countersinking. Locate at end of each nailer and at intervals not exceeding thirty (30) inches o.c.
- F. Furnish to the mason for building into the work, or attaching the work which is to be built in, anchors, bolts, wall plates bolted to masonry, corrugated wall plugs, nailing blocks, etc., which are required for the proper fastening and installation for the work or other items as called for in this Section.
- G. Detailed instructions with sketches of necessary requirements, shall be given to the masonry trade showing the location and other details of such nailing devices.

3.7 CLEANING UP

- A. General: Keep the premises in a neat, safe and orderly condition at all times during execution of this portion of the work, free from accumulation of sawdust, cut-ends and debris.
- B. Sweeping
 - 1. At the end of each working day, or more often if necessary, thoroughly sweep all surfaces where refuse from this portion of the work has settled.
 - 2. Remove the refuse to the area of the job site set aside for its storage.
 - 3. Upon completion of this portion of the work, thoroughly broom clean all surfaces.

END OF SECTION

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SECTION 064013 EXTERIOR ARCHITECTURAL WOODWORK

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the exterior architectural woodwork as shown on the drawings and/or specified herein, including but not limited to, the following:
 - 1. Architectural elements.
 - a. Wood baluster and supports at Front Porch
 - b. New stairs and railing at Front Porch
 - c. New wood front at East Porch using new and salvaged materials.
 - d. Modification of existing window openings.
 - 2. Vertical wood board tongue and groove exterior siding (to be painted).
 - 3. Existing clapboard siding.
 - 4. Decorative trim
 - a. Window surrounds
 - b. Door surrounds
 - c. Decorative pilasters and trim at dormers
 - d. Fascia trim below roof line

1.3 RELATED SECTIONS

- A. Restoration Treatment for Historic Woodwork – Section 060312.

1.4 SUBMITTALS

- A. Product Data: For each type of product and process indicated and incorporated into items of exterior architectural woodwork during fabrication, finishing, and installation.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show details full size.
 - 2. Show locations and sizes of all connection details, including concealed blocking and reinforcement specified in other Sections.

- C. No variation, from the general arrangement and details indicated on the drawings shall be made on the shop drawings unless required to suit the actual conditions on the premises, and then only with the written acceptance of the Architect. All variations must be clearly marked as such on drawings submitted for approval.
- D. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- E. Qualification Data: For fabricator and related subs.
- F. Samples: Provide sample of each wood railing, spindles, moldings, and cabinetry. Do not proceed with any mockups until samples are approved.
- G. Samples for Verification:
 - 1. Lumber, not less than 50 sq. in., for each species, with 1/2 of exposed surface finished, in range of finish tints for selection by Architect.
 - 2. Wood finished with sealant.
 - 3. Wood finished with stain.
- H. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- I. Qualification Data: For Installer and fabricator.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.
- B. Installer Qualifications: Certified participant in AWI's Quality Certification Program.
- C. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of exterior architectural woodwork indicated for construction, finishes, installation, and other requirements.
 - 1. Provide AWI Quality Certification Program labels and certificates indicating that woodwork, including installation, complies with requirements of grades specified.
- D. Quality Standard: Unless otherwise indicated, comply with AWI's "Manual of Millwork" for grades of exterior architectural woodwork indicated for construction, finishes, installation, and other requirements.
 - 1. Provide AWI-certified compliance labels and certificates indicating that woodwork, including installation, complies with requirements of grades specified.

1.6 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation of exterior woodwork only when existing and forecasted weather conditions permit work to be performed and at least one coat of specified finish to be applied without exposure to rain, snow, or dampness.
- B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.
 - 2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.7 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, reinforcements, and other related units of Work specified in other Sections to ensure that exterior architectural woodwork can be supported and installed as indicated.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood: Surfaced smooth on four sides with eased edges; kiln dried, free of knots, solid stock of species indicated.
- C. Lumber: Wood species for exterior members shall be as indicated on drawings. For wood species for interior spaces. All pieces shall be dried to an average moisture content of 12% (9-14% for individual pieces) before assembly and treatment.

2.2 INSTALLATION MATERIALS

- A. Blocking and shims: Softwood or hardwood lumber, pressure-preservative treated, kiln dried to less than 15 percent moisture content.
- B. Screws: Stainless steel.
 - 1. Provide self-drilling screws for metal framing supports, as recommended by metal-framing manufacturer, square drive type at exposed locations. All screw locations shall be pre-drilled for countersunk square drive type.

- C. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide stainless steel anchors and inserts, unless otherwise indicated. Provide toothed-stainless steel expansion sleeves for drilled-in-place anchors.

2.3 FINISH

- A. Painted; see Section 099000.

2.4 FABRICATION, GENERAL

- A. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
 - 1. Edges of Solid-Wood (Lumber) Members 3/4 Inch Thick or Less: 1/16 inch.
 - 2. Edges of Rails and Similar Members More Than 3/4 Inch Thick: 1/8 inch.
- B. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- C. Shop cut openings, to maximum extent possible, to receive hardware, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Smooth edges of cutouts and seal with a water-resistant coating suitable for exterior applications.

PART 3 EXECUTION

3.1 PREPARATION

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.
- B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and back priming.

3.2 INSTALLATION

- A. Quality Standard: Install woodwork to comply with same grade specified in Part 2 for type of woodwork involved.
- B. Install wood to provide 1/2" maximum spacing, taking account to shrinkage.
- C. Install woodwork true and straight with no distortions. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
- D. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
- E. Anchor woodwork to anchors or blocking built in or directly attached to substrates.

- F. Complete finishing work specified in this Section to extent not completed at shop or before installation of woodwork. Fill nail and screw holes with matching filler where exposed.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; replace woodwork where not possible to repair. Adjust joinery for uniform appearance.
- B. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION

SECTION 064023 - ARCHITECTURAL WOODWORK

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the architectural woodwork as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Wood paneling.
 - 2. Wood trim, moldings, base, and rails.
 - 3. Wood casework and counters with special veneers.
 - 4. Wood casework and counters with plastic laminate finish.
 - 5. Hardware for casework.
 - 6. Wood shelving.
 - 7. Wood framing and rough lumber as required for work of this Section.
 - 8. Wood grounds, blocking, nailers, furring as required for work of this Section.
 - 9. All rough hardware and fastenings for work of this Section.
 - 10. Drilling concrete and masonry, drilling and/or tapping metal work, as required, for the installation of work of this Section.
 - 11. Back painting as specified herein.
 - 12. Shop finish of work of this Section, except items indicated herein to be shop primed only.

1.3 RELATED SECTIONS

- A. Carpentry - Section 062000.
- B. Caulking between architectural woodwork and any wall, floor, or ceiling joints - Section 079200.
- C. Wood doors - Section 081416.
- D. Field finishing - Section 099000.
- E. Restoration Treatment for Historic Woodwork – Section 060312.

1.4 QUALITY STANDARDS

- A. The quality standards of the Architectural Woodwork Institute, "Architectural Woodwork Standards," 2nd Edition, dated October 1, 2014, shall apply to all workmanship including materials and installation, for architectural woodwork and by reference are made a part of this specification. All work shall conform to "Premium" grade requirements of the AWI "Architectural Woodwork Standards," unless otherwise modified herein.
- B. In the event of a dispute as to the quality grade (or grades), the Contractor shall call upon the Architectural Woodwork Institute for an inspection under AWI's Quality Certification Program which shall include a QCP Inspection and Report. The Contractor agrees to abide by the decision of this Report.. The cost of said inspection and report shall be borne by the Contractor.
- C. Employ only tradesmen experienced in the fabrication and installation of architectural woodwork.
- D. Woodworking firm must be accredited by the AWI Quality Certification Program (QCP).

1.5 SUBMITTALS

- A. Shop Drawings
 - 1. Submit shop drawings of all woodwork specified and indicated on the drawings. Shop drawings shall indicate room plans and elevations at 3/4" equals 1'-0" scale and typical construction details at 3" equals 1'-0" scale. Shop drawings shall indicate all materials, thicknesses and finishes.
 - 2. Shop drawings shall show all finish hardware, anchors, fastenings and accessories.
 - 3. Shop drawings shall show all jointing, joint treatment and butt jointing in veneers and plastic laminate.
 - 4. Shop drawings for wood paneling must show complete elevations of rooms to receive paneling as well as panel matching required by these specifications.
 - 5. Shop drawings for cabinet work must show centerline height and horizontal location of all required internal wall blocking.
 - 6. Where architectural woodwork deviates from AWI standards noted herein, shop drawings must identify these deviations.
- B. Samples: Submit samples of each of the following items:
 - 1. Plastic laminate, twelve (12) inches square, including a section of outside corner.
 - 2. Transparent finish for each species of wood veneer laminated to particleboard, twelve (12) inches square, for each finish specified or shown.
 - 3. Opaque finish wood veneer laminated to particleboard, twelve (12) inches square for each color, gloss and finish specified or shown.
 - 4. Each finish type of wood panel, 24" wide x 36" high.

5. Each type and finish of each type of wood cornice, trim, molding, etc., eight (8) inches long, finish as specified.
6. Cabinet hardware.
7. Upholstery sample, 18 inches square, from dye lot to be used in work.
8. Paper fabrications.
9. Mock-Up: Section of custom acoustic diffuser panel and railing at Heart Space Lounge, as directed by the Architect.

1.6 QUALIFICATIONS

- A. The work of this Section shall be provided by a firm having a minimum of five (5) years' experience on projects of similar size and quality to that specified and shown.

1.7 COORDINATION

- A. Coordinate the work of this Section with other appropriate Sections of the specifications to insure proper scheduling for fabrication and installation of the work specified herein
- B. Coordinate with partition and finish trades to insure that proper provisions are made for the installation of the work specified herein.
- C. Verify all dimensions in the field prior to fabrication of all Architectural Woodwork to assure proper fit.

1.8 PRODUCT HANDLING

- A. All materials and work of this Section shall be protected from damage, from time of shipment from shop to final acceptance of work. Cover, ventilate, and protect work of this Section from damage caused by weather, moisture, heat, staining, dirt, abrasions, any other causes which may adversely affect appearance or use, or which may cause deterioration of finish, warping, distortion, twisting, opening of joints and seams, delamination, loosening, etc., of work of this Section.
- B. Keep all finish carpentry, millwork, and cabinet work under cover both in transit and at the premises. Do not deliver any finish carpentry, millwork or cabinet work before it is required for installation. Protect such work to avoid damage in transit, during erection and after erection until acceptance of the building; use all such methods to provide the proper protection. Remove such protection when directed by the Architect.
- C. Deliver finish carpentry, millwork, and cabinet work in a dry stable condition; protect same against injury and dampness. Do not store or install finish carpentry, millwork or cabinet work until after the concrete, masonry and plaster work are thoroughly dry.
- D. Damaged or defective items of work of this Section are subject to rejection and replacement with new by Contractor, at no cost to Owner.

1.9 JOB CONDITIONS

- A. Humidity Controls: The ambient relative humidity at the site, including both the storage and the installation areas, shall be maintained between 25% and 55% prior to delivery and through the life of the installation.
- B. Determine equilibrium moisture content and maintain required temperature and relative humidity as required for a tolerance of plus or minus one (1) percent of the specified optimum moisture content until woodwork receives specified finishes. Refer to "Guide to Wood Species Selection," AWI, for method of determining equilibrium moisture content values.
- C. Examination of Substrate and Conditions: The installer must examine the substrate and the conditions under which the work of this Section is to be performed, and notify the Contractor in writing of unsatisfactory conditions. Do not proceed with work under this Section until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.
- D. Areas to receive architectural woodwork must be fully enclosed with windows and/or curtain wall installed and glazed, exterior door in place, HVAC systems operational and temporary openings closed. Any plaster, wet grinding and concrete work shall be fully dry.
- E. Architectural woodwork shall be allowed to come to equilibrium on site for 7 days prior to installation.

PART 2 PRODUCTS

2.1 BASIC REQUIREMENTS

- A. Wood Moisture Content: Provide kiln-dried (KD) lumber with an average moisture content range of nine (9) to twelve (12) percent for exterior work and six (6) to eleven (11) percent for interior work.
- B. Measurements: Before proceeding with woodwork required to be fitted to other construction, obtain field measurements and verify all dimensions of shop drawing details as required for accurate fit.
- C. Compatibility of Grain and Color: Architect reserves the right to select materials for best compatibility between visually related members and veneers.
- D. Machine and sand woodwork to comply with requirements of Standards for specified grade.
- E. Fabricate woodwork to dimensions, profiles and details shown. Rout or groove back of flat trim members, kerf backs of other wide flat members except plywood or veneered members.
- F. Miter joints by joining, splining and gluing to comply with requirements for the specified grade.
- G. Inspect each piece of lumber and plywood or each unit of woodwork after drying; do not use twisted, warped, bowed or otherwise damaged or defective wood.

2.2 GENERAL - MATERIALS

- A. Softwood lumber shall conform to the requirements of the latest edition of American Lumber Standards Simplified Practice Recommendation R-16. Grades shall conform to the grading

rules of the Association having jurisdiction, and shall bear the official grade and trademark of the Inspection Bureau of the Association and a mark of mill identification.

- B. Framing and Rough Lumber: No. 1 KD grade Southern Pine or Dense Construction grade Douglas Fir, having extreme fiber in bending stress of at least 1700 psi, surfaced four sides (S4S). Provide fire retardant treatment meeting requirements of Section 06200.
- C. Grounds, Blocking, Nailers, Furring: Southern Pine, Douglas Fir or Sitka Spruce, grade to suit particular purpose and to be straight, square edged, straight grained, surfaced four sides (S4S), and which will retain nails and screws without splitting. Provide fire retardant treatment.
- D. Wood Veneers and Lumber: Provide AWI Premium Grade materials and workmanship. For species not listed in the AWS comply with the following:
 - 1. Provide AWS Lumber Grade Premium and AWS Grade AA Veneer, book-matched, minimum 6 inch face veneer width. Kiln dry to 6-8 percent moisture content. Components shall be free of defects and sapwood. Match adjacent pieces for color and grain pattern.
 - 2. Single-Source Requirement for Wood Veneers and Solids: Intent is to provide wood which matches as closely as possible throughout the project. Provide wood veneers and solids from the same distributor, and from the same flitches and solids sources to the greatest extent possible.
- E. Lumber: AWI Section 3 with the following requirements:
 - 1. Hardwood for Transparent Finish: Premium Grade, select Rift Sawn Oak matching adjoining veneers unless otherwise shown or specified, and free from cat's eyes, bird's eyes, burls, curls or cross grains.
 - 2. Hardwood for Opaque Finish: Any hardwood which, when finished, will not show any grain, imperfection or other surface defects when used with the opaque finish specified.
- F. Plywood: AWI Section 4; Veneer core, particleboard, or plywood core unless otherwise specified, and with the following requirements:
 - 1. Hardwood: Premium Grade, face veneers as shown or specified
 - 2. Particleboard: Premium Grade, fire retardant for wall paneling only equal to Duraflake FR and Duraflake for cabinets. In addition, particleboard and MDF shall be certified to the following EPP CPA 3-08 formaldehyde emission limits:
 - a. Particleboard meets 0.18 ppm.
 - b. MDF meets 0.21 ppm.
 - 3. Edges: Banded with hardwood in accordance with Premium Grade Standards.
- G. Wood Species and Cut for Transparent Finish: Rift sliced/sawn Oak.
 - 1. Architect's control samples for transparent finish, veneer grain and figure characteristics are available for review at the office of the Architect.
- H. Veneer Matching Requirements:

1. Matching Between Adjacent Veneer Leaves: Book match and architectural end match.
2. Matching Within Individual Panel Faces: Balance and Center Match.
3. Method of Matching Panels: Blueprint-matched panels and components

I. Finishing (Wood)

1. Transparent Finish for Paneling, Casework and Trim
 - a. AWI Factory Finish System "Conversion Varnish", System 5, Transparent.
 - b. AWI Premium Grade.
 - c. Stain and Degree of Sheen: To match existing adjacent woodwork.
2. Opaque Finish for Casework
 - a. AWI Factory Finish System "Conversion Varnish", System 5, Opaque".
 - b. AWI Premium Grade.
 - c. Degree of Sheen: Semi-gloss.
 - d. No grain to show.

2.3 METAL

A. Steel

1. Structural Steel Shapes and Plates: ASTM A 36.
2. Hot-Rolled Carbon Steel Sheets: Commercial quality, ASTM A 569, may be used for concealed parts only.
3. Finishes
 - a. Primer for Unexposed Metal: Zinc chromate primer.

2.4 PLASTIC LAMINATE

- A. Face Sheets: NEMA Publication LD3, Grade GP50, Type I, 0.05" thick, as manufactured by Fenix NTM, Chemetal, Formica, Wilsonart. Color, pattern and finish as selected by the Architect.
- B. Backing Sheets: Non-decorative, high-pressure plastic laminate, NEMA LD3, Grade BK20, 0.02" thick.
- C. Edges: Finish with plastic laminate to match face and applied before face sheets are applied, unless otherwise shown or specified.

2.5 CABINETS WITH PLASTIC LAMINATE FINISH

A. General

1. Fabricate all cabinetry and millwork to the "Premium Grade" standards of the AWI, Section 10.

2. Face construction of cabinets shall be "Flush Overlay."
3. Provide 3/4" thick doors, drawer fronts and fixed panels (including thickness of plastic) except where required to be thicker by Standards; and provide flush units.
4. Provide dust panels of 1/4" thick plywood or tempered hardboard above compartments and drawers, except where located directly below countertops.
5. Exposed Edges: Plastic laminate matching exposed panel surfaces. Ease exposed edge of overlap sheet.

B. Plastic Laminate

1. Plastic Laminate for Horizontal Surfaces: 0.050" thick, general purpose type (high pressure).
2. Plastic Laminate for External Vertical Surfaces: 0.028" thick, general purpose type (high pressure).
3. Plastic Laminate for Post Forming: 0.042" thick, post forming (high pressure).
4. Plastic Laminate for Cabinet Linings: 0.020" thick, cabinet liner (high pressure).
5. Plastic Laminate for Concealed Panel Backing: 0.020" thick, backer type (high pressure).
6. Plastic Laminate Colors and Patterns: As selected by the Architect from manufacturer's standard satin finish products. Acceptable Manufacturers: Fenix NTM, Chemetal, Formica, Wilsonart.

C. Shop Assembly: All work shall be shop assembled. Work that is too large for entrance into the use area shall be fabricated in attachable sections with provisions for reconnection in the using space.

D. Material Thicknesses: See drawings for general materials thicknesses. Minimum thickness of solid lumber for web frames, trim, bases, etc., shall be 3/4". Minimum thickness of plywood and particleboard shall be 3/4".

E. Sizes: See drawings for woodwork sizes required. The manufacturer shall check field dimensions and verify all openings and actual field conditions prior to fabrication of work.

F. Manufacturer is responsible for rigidity and structural stability.

2.6 PLASTIC LAMINATE COUNTERTOPS

A. Grade: Same as AWI grade required for cabinet work; plastic laminate finish.

B. Construction

1. Provide back-splash and end-splash, where detailed; top-mounted square butt joint, fully covered with matching plastic laminate, eased edges.
2. Exposed Counter Edges: Plastic laminate matching surface, except as otherwise indicated. Ease exposed edges of overlap sheet.

3. Cut openings for equipment to be installed. Comply with equipment manufacturer's requirements, but provide internal corners of 1/8" minimum radius. Smooth saw cut and ease edges.
4. Seal cut edges of counter at openings for sinks and other "wet" equipment, using waterproofing compound recommended by plastic manufacturer and compatible with laminating adhesive.

2.7 MISCELLANEOUS PRODUCTS

A. Fasteners

1. Wood Screws: FS FF-S-111, type, size, material and finish as required for the condition of use.
2. Nails: FS FF-N-105, type, size, material and finish as required for the condition of use.
3. Anchors: Type, size, material and finish as required for the condition of use.
4. Staples: Upholstery type staples of sufficient strength to hold fabric taut in place without sagging.

B. Adhesives

1. For Laminating Plastic Laminate Surfaces: Urea resin, Type II, as recommended by fabricator.
2. For All Other Uses: polyvinyl acetate resin emulsion or other type as recommended by the fabricator..

2.8 HARDWARE

A. Architectural Woodwork Hardware: Provide the following items, or their approved equal, as required:

1. Hinges: Hafele Salice concealed hinges with Silencia soft-close. Overlay as per details.
2. Catches: Magnetic; top and bottom.
3. Pulls. Back-Mounted Pulls to meet requirements of: BHMA A156.9, B02011.
 - a. Pantries: Doug Mockett, DP57 Series wire pulls, or approved equal. Matte black finish. Size/Model to be DP57B (4-5/32 inches overall length) unless otherwise noted.
 - b. Knobs – Bowman Cabinet Knob by Rejuvenation Hardware in Oil Rubbed Bronze finish.
4. Locks: Directed by the Architect in matching finish.
5. Drawer Slides: Accuride, Model 7434 side-mounted, full extension, 100 lb. capacity.

6. Shelf Supports: Pin and grommet system equal to No. 282.01.701 pin and 282.50.704 grommet made by Hafele.
7. At millwork panel door assemblies, all door hardware shall be furnished by the millworker unless otherwise noted on the door schedule. Refer to architectural details for information.
8. Finish
 - a. Concealed Hardware: Satin stainless steel.
 - b. Exposed Hardware: As indicated on the drawings (style and finish).
- B. Closet Hardware: Oval wardrobe rails, chrome plated steel with center bracket and wall support brackets made by Hafele or approved equal.
- C. Hardware for Accessible Panels (Lounge Kitchen): Include Z-clips, magnetic catches, hanging rails, guide rails and receivers, etc.

2.9 WOOD FOR RAILS, CAPS, TRIM, BASES, MOLDINGS

- A. Quality Standard: For the following types of interior architectural woodwork, comply with indicated standards as applicable.
 1. Standing and Running Trim: AWI Section 6.
 2. Miscellaneous Millwork: AWI Section 6.
 3. Stair Handrails: AWI Section 7.
- B. Wood Work for Transparent Finish: Except as otherwise indicated, comply with the following:
 1. Grade: Premium.
 2. Species of Solid Wood: Rift Sawn Species as noted on drawings.
- C. Woodwork for Paint Finish: Except as otherwise indicated, comply with the following:
 1. Grade: Premium.
 2. Species of Solid Wood: Solid, paint grade, sound clear Poplar or Birch.

2.10 HARDWOOD VENEERED PLYWOOD PANELS

- A. Type: Interior grade, hot press laminated with waterproof adhesive, pre-finished, with face veneers and core construction as specified herein, meet AWI Section 8 standards.
- B. Core Construction: Shall be fire retardant treated, meeting requirements of Section 06200; type at fabricator's option.
 1. Where the core is free of urea formaldehyde, provide a layer of veneer over the substrate prior to application of finish veneer to prevent telegraphing of patterns of the adhesive.
- C. Thickness: 3/4" thick.
- D. Face Veneers: Oak, rift sawn, no figure.

- E. Matching between adjacent veneer leaves: continuous end match.
- F. Matching within individual panel faces: Sequence matched.
- G. Veneer Flitch Selection: veneer is subject to Architects selection and approval.
- H. Finish: Veneers shall be finely sanded and clear factory pre-finished using AWI System noted herein.
- I. Panel Sizes: See drawings for panel sizes required.
- J. Exposed edges of panels shall be solid sections matching face veneer.
- K. Where wood doors are set in veneered wood paneling, veneer on door shall be sequenced to fit veneer pattern; doors to meet the requirements of Section 081416.

2.11 FABRICATION - GENERAL

- A. Provide lumber framing for architectural woodwork, complete with all bracing and fastening devices as required for a rigid installation, and as required to sustain the imposed loads.
- B. Do all fabrication from field measurement with provision for scribing as required to meet built-in conditions.
- C. Coordinate the work of this Section with the work of other trades.
- D. Fabricate units in largest practicable sections. Assemble in the shop for trial fit, disassemble for shipment and reassemble with concealed fasteners.
- E. Maintain relative humidity and temperature during fabrication, storage and finishing operations matching that of the areas of installation.
- F. Details indicate the required type and quality of construction. Modifications to conform to manufacturer's standards will be considered providing they comply with the Contract Documents, maintain the profiles shown and subject to acceptance by the Architect.
- G. Reinforcing shown is minimum. Provide additional reinforcing as required to ensure a rigid assembly. Exposed surfaces shall be free from dents, tool marks, warpage, buckle, glue and open joints, or other defects affecting serviceability or appearance. Accurately fit all joints, corners and miters. Conceal all fasteners. Make threaded connections up tight so that threads are entirely concealed.
- H. Factory finish all items where possible. Defer final touch-up, cleaning and polishing until after delivery and installation.
- I. Comply with AWI, Premium Grade standards for sanding, filling countersunk fasteners, back priming and similar preparations for the finishing of architectural woodwork, as applicable to each unit of work.
- J. Prepare all countersunk wood screw attachments for wood plugs. Wood plugs shall match surrounding species and grain direction; putty filling is not acceptable.

2.12 FABRICATION - SPECIFIC ITEMS

A. Casework

1. Include all preparations for mechanical, electrical, telephone and plumbing work required.
2. Provide cabinet hardware for casework as shown.
3. Provide dust panels in body webs and between drawer units.
4. Provide wood veneers for exposed surfaces as specified herein before.
5. Hollow core doors will not be permitted.
6. Provide matching veneers for edge treatments of case body members where transparent finishes are indicated or specified.
7. Provide drawers with slides as specified. Drawers shall not rest on web body frames.
8. Provide wood veneers for transparent finish, of matching and continuing grain, for drawer and door edges.

B. Paneling

1. General Paneling Requirements
 - a. Panel type shall be AWI, Premium Grade construction.
 - b. Panel joints shall be flush type unless otherwise shown.
 - c. Provide concealed wood blocking and framing, anchors, clips, splines, supporting and attaching devices.
 - d. Provide cut-outs to receive attachments, mechanical and electrical work as required.
2. Wood Veneer Paneling
 - a. Comply with AWI Section 8.
 - b. Provide veneers as specified and as shown, including all matching requirements. Run veneer in the direction shown.
3. Stile and Rail Paneling
 - a. Comply with AWI Section 8.
 - b. All exposed edges of panel cores shall be edge banded.
 - c. Grain direction shall be as shown.

C. Closet and Storage Shelving

1. Provide closet and storage shelving in accordance with AWI Section 600, Custom Grade, unless otherwise shown or specified.
2. Exposed edges shall have hardwood edge bands.

D. Standing and Running Trim: Provide standing and running trim of the sizes, profiles, species and finish as specified or shown and complying with AWI Section 6, Premium Grade.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where architectural woodwork is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 FRAMING

- A. Use specified framing lumber, sizes and spacing as indicated on drawings and as required to support loads.
- B. Framing shall be cut square on bearings, closely fitted, accurately set to required lines and levels, rigidly secured in place at bearings and connection with nails, lag screws and/or bolts as required by conditions.

3.3 GROUNDS, BLOCKING, NAILERS AND FURRING

- A. Provide all wood grounds, blocking, nailers, furring, and the like for work of this Section, where shown and where required, dressed to size indicated or required to suit the condition. Install grounds, blocking, nailers, furring, etc., rigidly, in proper alignment, trued with a long straight edge.

3.4 ROUGH HARDWARE

- A. Provide all rough hardware, such as nails, screws, bolts, anchors, hangers, clips and similar items. Hardware shall be of the proper size and kind to adequately secure the work together and in place, in a rigid and substantial manner. Use galvanized hardware at exterior walls, and at other locations where subject to moisture or where water will be present.
- B. Secure wood to concrete and to solid masonry with countersunk bolts in expansion sleeves or other approved manner, to steel with countersunk bolts, to hollow masonry and to drywall with heavy duty countersunk toggle bolts. Space fastenings not more than sixteen (16) inches apart. Hardened cut nails, power-driven fastenings, or other suitable devices may be used where approved by the Architect.
- C. Connections and fastenings shall be made in such manner as will compensate for swelling and shrinkage and shall permit the work to remain permanently in place without any splitting or opening of joints.

3.5 GENERAL INSTALLATION

- A. Wall anchorage and general installation procedures for cabinetry work shall conform to AWI Section 10, Article entitled "EXECUTION", Sub-Article 6.1 with all related sub-paragraphs.
- B. Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level (including countertops), and with 1/16" maximum offset in flush adjoining surfaces, 1/8" maximum offset in revealed adjoining surfaces.

- C. Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
- D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation.

3.6 TRIM, MOLDINGS, ETC.

- A. Install with minimum number of joints possible, using full-length pieces for each run. Stagger joints in adjacent and related members. Cope at returns, miter corner.
- B. Joints of all trim and/or moldings shall be set tight, miter exterior angles and cope interior angles. Joints, except end joints less than twelve (12) feet apart, will not be permitted in straight runs of trim and/or moldings and rails.
- C. Secure all trim and/or moldings with glue and blind nail with finishing nails. Set exposed nail heads in finished work and putty. Sand all work to remove any tool marks and irregularities.
- D. Wood shall receive finish as specified in Section 099000 - Painting.

3.7 WOOD RAILS

- A. Wood shall be planed straight, square and level, then sanded smooth with flush finished surfaces. Joints shall occur over supports. Right angle joints shall be mitered.
- B. All exposed fastening devices shall be countersunk and set below finished wood surfaces, and fitted with matching wood plugs; sand plugs and finish smooth and flush with exposed surfaces.
- C. Handrails shall be capable of withstanding a force of two hundred (200) lbs. applied to rail at any point from any direction.
- D. Provide all hardware and metal supports required for complete installation as detailed on drawings.

3.8 VENEERED WOOD PANELS

- A. Provide a system of concealed panel hanger clips, shims and corresponding wall clips to support the panel system. Face nailing shall not be permitted.
- B. Hang the panels in the designated locations. Panels shall be straight, level, flat and flush with adjoining panels.
- C. Where reveals are indicated, keep panels spaced so that reveals are parallel and of widths shown.

3.9 CLOSET AND STORAGE SHELVING

- A. Provide closet and storage shelving at the locations shown. Provide hang rods where shown. Set adjustable center hangers.

3.10 CABINET WORK AND MILLWORK

A. General

1. Materials and workmanship shall conform to the Quality Standards of the Architectural Woodwork Institute specified herein and to the drawings.
2. Cabinet work and millwork shall be performed by experienced cabinet work and millwork company, having craftsmen skilled in their trade.
3. Fabricate all cabinet work and millwork completely in the shop, in complete and/or as large units as practical, leaving only fitting, assembly, installation and a minimum of fabrication and finishing to be done at the building. Assembled work shall be rigidly secured and permanently fastened together with concealed fasteners.
4. Afford Architect every facility for inspection of work at shop or mill at such times as the Architect may select.
5. As far as practicable, use concealed fastenings for joining and assembling the work. Where this is impossible, the means of securing shall be placed in inconspicuous places and methods of joining and assembling submitted for Architect's approval prior to fabrication.
6. Mill all finish wood accurately to detail, with clean cut moldings, profiles and lines, machined, sanded smooth, housed, jointed, blocked, put together in the best manner, with provision for swelling and shrinkage, and to assure the work remaining in place without warping, splitting or opening of joints.
7. Cut trim to dimensions and profiles shown, from solid stock.
8. Make all trim and the like in single lengths wherever possible; joints mitered, glued and splined. Continuous members shall have tight flush joints, doweled or splined and glued.
9. Make all joints hairline tight, fitted accurately and joined with hardwood splines or dowels, glued together, or by other method approved by Architect. Use screws, not nails, for fastenings.
10. Gluing shall, where practicable, be by the hot plate press method and glued surfaces shall be in close contact throughout. Glue stains on finished work will not be permitted.
11. Cover surface fastenings, where permitted, with matching wood plugs or wood putty. Finish exposed edges of plywood with matching solid stock. Lock miter external corners; tongue and groove internal corners to allow for contraction and expansion.
12. Machine sand with grain, finish with hand sanding, leave exposed surfaces free from machine or tool marks that will show through the finish.
13. Work which adjoins drywall, concrete, or other finish shall be fitted and scribed in a careful manner and ample allowance shall be given for cutting and scribing.
14. Erect work true to lines, levels and dimensions, square, aligned and plumb, securely and rigidly fastened in place.

B. Cabinet Work: Provide all items of cabinet work indicated on drawings and as herein specified.

1. Tops, sides, backs, bottoms, dividers, shelves, fronts, doors and drawer fronts shall be of plywood or flakeboard core, with the specified wood veneer or plastic laminate as indicated on drawings.
2. Drawer sides and backs shall be 1/2" thick solid clear selected white birch, suitable for clear finish. Drawer bottom shall be 3/8" thick plywood with clear selected white birch veneers, suitable for clear finish.
3. Cabinet doors and drawers shall be flush mounted.
4. Adjustable shelves in cabinets shall have grommets spaced 2" o.c.
5. Fixed shelves shall be dadoed into side supports and glued.
6. Shelves shall be 3/4" thick for spans up to 30"; for spans in excess of 30" to 48" shelves shall be 1" thick.
7. All cabinets shall have closed top, sides, bottom, and back with veneers to match face work. Cabinets to fit accurately into indicated locations; scribe moldings permitted only where indicated.
8. Countertops, counters, counter fronts, shelves, etc., indicated on drawings to have plastic laminate, shall have plastic laminate shop applied to 3/4" thick core, with plastic laminate backing sheet on underside or back of countertops, counters and shelves. Plastic laminate shall be pressure laminated to core with laminate at external corners. Provide concealed wood framing to support plastic laminate counters, securely fastened to wall and to underside of counters.

C. Countertops shall be installed to support a minimum concentrated live load of 150 lbs. acting downward at mid span at outer edge of counter without causing deformation and damage.

3.11 WOOD BASES

- A. Provide plywood backing, toggle bolted to substrate, if substrate not suitable for securing wood base.
- B. Machine wood bases from specified wood, to profiles indicated on drawings.
- C. Set base level and plumb. Where indicated on drawings, face of wood base shall be flush with wall above. Glue wood base to substrate or to plywood backing, and screw or nail wood base to substrate or to plywood backing with countersunk wood screws or with finishing nails, recess wood screw heads, and spackle with wood putty, set and spackle nails with wood putty. Do not nail or fasten wood base to floor. Ends of wood base shall be either splined or ship lapped.
- D. Where no wood backing occurs, screw apply base at each stud with screw countersunk and wood putty applied and sanded smooth and flush with base.

3.12 PAINTING AND FINISHING

- A. General: All painting and finishing work of this Section shall be shop applied, unless otherwise noted, as specified below. All painting and finishing shall match approved samples. Field finish painting, where specified below, shall be by painting Subcontractor, as specified for in Painting Section.
- B. Schedule of Painting and Finishing
 - 1. Shop Primer On:
 - a. Wood bases.
 - b. Wood trim and moldings to be field finish painted.
 - c. Ferrous metal work.
 - 2. Shop Natural Finish On:
 - a. Wood paneling.
 - b. Wood cabinets with wood veneers.
- C. Back-Painting: All work of this Section in contact with concrete or masonry or other moisture areas and all concealed surfaces of cabinet and millwork, shall be back-painted with one (1) coat of oil based paint prior to installation, shop applied where practicable.
- D. Field Touch-Up: Field touch-up shall be the responsibility of the installing Subcontractor, and shall include the filling and touch-up of exposed job made nail or screw holes, refinishing of raw surfaces resulting from job fitting, repair of job inflicted scratches and mars, and final cleaning up of the finished surfaces.

3.13 CLEAN UP AND PROTECTION

- A. Clean Up: At regular intervals during the course of the work, all debris and excess material shall be cleaned up and removed from the site. Upon completion of installation, clean all spaces of debris caused by woodwork installation.
- B. Protection: Protect all woodwork from marring, defacement or other damage until final completion and acceptance of the project by the Owner. Repair or replace all defective units prior to final inspection as directed by the Architect. Any units that cannot be satisfactorily repaired in the opinion of the Architect shall be replaced with new units of same original design, at no additional cost to the Owner.

END OF SECTION

SECTION 071326 - SHEET MEMBRANE WATERPROOFING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the sheet membrane waterproofing as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:
 - 1. Sheet membrane waterproofing for foundation and pit wall surfaces.
 - 2. Sheet membrane waterproofing for blindside of foundation wall surfaces.
 - 3. Sheet membrane waterproofing under all slabs including pits.

1.3 RELATED SECTIONS

- A. Cast-in-Place Concrete - Section 033000.
- B. Cement Parging - Section 092433.
- C. Earth Moving - Section 312000.

1.4 SUBMITTALS

- A. Shop Drawings: Project specific installation details, showing details at flashings, at terminations, at joints, at intersection of horizontal and vertical surfaces, and at penetrations in membrane system.
- B. Samples - Submit
 - 1. Membrane, 6" x 6" samples of each membrane.
 - 2. 6" x 6" sample of flashing.
 - 3. 6" x 6" sample of drainage board.
- C. Manufacturer's literature: Submit manufacturer's technical, safety data sheets, and installation literature for all materials of this Section. Submit Independent Test data indicating that membrane meets properties specified herein.
- D. General Contractor's Certification: Submit per Article 1.7.

1.5 STORAGE OF MATERIALS

- A. All materials shall be stored in their original tightly sealed containers or unopened packages; shall be clearly labeled with the manufacturer's name, brand name and number, and batch number of the material with expiration date where appropriate.

- B. Materials shall be stored in a neat and safe manner so as not to exceed the allowable live load of the storage area.
- C. Material shall be stored out of the weather in a clean, dry area.
- D. Liquid materials, such as adhesives, thinners and primers, shall be stored in areas away from sparks, open flames and excessive heat.

1.6 JOB CONDITIONS

- A. No application of waterproofing shall commence or proceed during inclement weather, or the threat of imminent precipitation.
- B. All surfaces to receive the system shall be thoroughly dry and free of dew or frost.
- C. Materials shall be stored until time of mixing at temperatures above 60 deg. F. to maintain a consistency suitable for mixing. Do no work below 40 deg. F.
- D. Prior to and during application, all dirt and dust shall be removed from surfaces either by vacuuming, sweeping, blowing with compressed air, or similar methods.
- E. Surfaces not designated to receive the system shall be properly masked or otherwise protected against accidental spillage or application of the material to those areas.

1.7 WARRANTY

- A. The manufacturer of the waterproofing system executed under this Section warrants the waterproofing system to be watertight and free from defects in materials and workmanship for a period of ten (10) years from date of acceptance of this Contract, and that he, at his own expense, repair and/or replace all other work which may be damaged as a result of such defective work, and which becomes defective during the warranty period.
- B. Contractor's Two-Year Workmanship Warranty: Provide a written guarantee for all work of this Section, stating that if, within two years after the Date of Substantial Completion of the Work, any of the work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so. The guarantee shall state that the Contractor shall bear all costs incurred by the Owner, including reasonable attorney's fees, to enforce compliance with the obligations of this Guarantee, and will replace any material or system that requires repeated maintenance or repair to function effectively. The obligation of this Guarantee shall run directly to the Owner, and may be enforced by the Owner against the Contractor, shall survive the termination of the Contract and shall not be limited by Conditions other than this Contract.

1.8 QUALITY ASSURANCE

- A. Preinstallation Conference: Approximately 2 weeks prior to scheduled commencement of waterproofing installation, meet at Project site with Waterproofing Installer; preparer of substrate to receive waterproofing; installers of other work in and around waterproofing that must precede, follow, or penetrate waterproofing (including Mechanical and Electrical Installers as applicable); Architect; Owner; and waterproofing manufacturer's representative to review materials, procedures, schedules, and other requirements and conditions related to installing waterproofing.
- B. Qualifications of Subcontractors

1. Subcontractors: All work of this Section shall be performed by a subcontractor who is approved by the manufacturer of the waterproofing material.
2. Qualifications of Subcontractors: Subcontractors shall submit evidence of being bona fide waterproofing subcontractors, for a period of not less than five (5) years, and that they are approved by the manufacturer of the waterproofing material for the installation of the manufacturer's material in accordance with the requirements of this Section.
 - a. Subcontractor shall submit a letter from manufacturer of waterproofing material stating that subcontractor is approved by the manufacturer for the application of the waterproofing systems specified and accepted for use on the Project.
 - b. Letter shall certify that the subcontractor has previously and satisfactorily applied the waterproofing systems specified herein on jobs of similar size and scope, under manufacturer's supervision.
 - c. Letter shall be on manufacturer's letterhead and shall be signed by an officer of the company, not by a local sales representative.

C. Manufacturer's Representative/Contractor's Certification

1. Representative of the waterproofing material manufacturer shall be required to provide field instructions and supervision for the installation of the waterproofing systems at the start of the work of this Section.
2. The manufacturer's representative shall be required to make sure that the workmen for waterproofing systems on the site of the Project are fully instructed and trained in the handling and application of all the materials, and shall see that all the materials are correctly installed.
3. Upon completion of the Installation, submit to the Architect written certification that the representative of the manufacturer of the waterproofing material has supervised the work of this Section and that all materials were correctly installed.

1.9 PROTECTION

- A. Against Loads: Protect work of this Section against concentrated loads and any other loads or equipment that would damage the materials or work.
- B. Against Traffic: Do not permit traffic on horizontally installed work of this Section, except for workmen doing the work, during the installation, and after the installation until membrane systems are covered with protective boards or with the specified finishing materials.
- C. Against Damage: Protect vertically installed work of this section from damage by reinforcing and placement.
 1. Take and maintain necessary preventative measures to protect work of this Section from damage until Project is accepted.
 2. Rejection of Damaged Work
 - a. Damaged materials or work will be rejected.
 - b. Rejected materials or work must be immediately removed and replaced with new materials.

1.10 FIELD QUALITY CONTROL

- A. Construction Traffic:
 - 1. Limit construction traffic over completed membrane.
 - 2. General Contractor shall provide 1/2 in. plywood protection layer, where construction traffic is unavoidable.
- B. Inform Architect in writing on a daily basis of any of the following events. State specific location of each occurrence.
 - 1. Buckling to the Waterproofing and other deformations as a result of ground water events.
 - 2. Leakage through the finished waterproofing installation.
 - 3. Damage by other trades.
- C. Provide Manufacturer's Representative's report (prior to backfill) stating that the waterproofing has been inspected and is acceptable and eligible for manufacturer's warranty.

PART 2 PRODUCTS

2.1 WATERPROOFING MEMBRANE

- A. Trade names used herein for membrane waterproofing are those of GCP Applied Technologies (hereinafter "Grace"). Other acceptable manufacturers include, Carlisle Coatings and Waterproofing, and Henry Company, provided the manufacturer substitutes equivalent products.
- B. At blind side waterproof conditions, provide adhesive coated HDPE Composite Sheet "Preprufe 160R" system, including "Hydroduct 220" drainage board, by Grace, or similar by Henry Company or Carlisle Coatings and Waterproofing or approved equal.
- C. At underslab conditions, provide HDPE Composite Sheet "Preprufe 300" system by Grace. or similar by Henry Company or Carlisle Coatings and Waterproofing or approved equal.
- D. For accessible foundation wall waterproofing, provide "Bituthene 4000" sheet waterproofing membrane, 60 mils thick, and "Bituthene Liquid Membrane," 60 mils thick, for flashing, as manufactured by Grace, or approved equal.
- E. HDPE membrane shall have a protective layer to protect the membrane from the weather and U.V. for up to 30 days before casting concrete against it.
- F. Primer/Conditioner: "Bituthene 4000" latex/water-based primer specifically formulated to provide adhesion of Bituthene Waterproofing Membranes.
 - 1. If water-based primer does not provide sufficient adhesion to substrate, substitute Bituthene Primer B-2 solvent-based primer.
- G. Bituthene Elastomeric Mastic: Rubberized asphalt base mastic.
- H. Tape: Double sided synthetic adhesive tape equal to "Preprufe LT" and "HC."

- I. Bituthene Liquid Membrane: Two-component 100% solids trowel grade asphalt modified urethane. For use above and below the sheet membrane.
- J. Drainage Board/Composite: "Hydroduct 220" prefabricated dimpled polystyrene drainage core with a non-woven filter fabric on one side and a polymer film on the reverse side, by Grace.
 - 1. At horizontal applications, use "Hydroduct 660."
- K. Insulation: Provide XPS insulation with minimum 40 psi compressive strength in thicknesses indicated on the drawings; refer to Section 072100.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where membrane waterproofing is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work. Starting of work implies acceptance of substrate.

3.2 PREPARATION OF SURFACES TO RECEIVE WATERPROOFING

- A. Conform to the requirements of Bituthene Techletter No. BTL 82-02, published by Grace.

3.3 INSTALLATION

- A. General: Conform to recommendations and published specifications of the manufacturer' including environmental requirements.
- B. Foundation Walls (Accessible Walls)
 - 1. General: The membrane, when in place must withstand a minimum static ground water pressure of 150 feet.
 - 2. Priming: Application of primer shall be limited to what can be covered with Bituthene Waterproofing Membrane in a given work day. Primed areas not covered by membrane during the work day will be reprimed. Apply primer by spray, roller or brush at a rate of 250 - 350 sq. ft. per gallon. Roller shall be natural material such as lamb's wool, having a nap of approximately one inch. Primer shall be applied to a clean, dry, frost-free and dust-free surface. Sufficient primer must be used on the day surface to condition it to a dust-free state suitable for the application of Bituthene Waterproofing Membranes.
 - a. Bituthene 4000 Surface Conditioner should not be applied below 40 deg. F. on vertical surfaces. Allow primer to dry 30 minutes. Conditioner is considered dry when the substrate returns to its original color.
 - b. Re-prime areas that become dusty or dirty prior to membrane installation.
 - 3. Membrane Installation: Apply Bituthene Waterproofing Membrane vertically in sections of 8' in length or less. On higher walls apply two or more sections with the upper overlapping the lower by a least 2-1/2". Press all membrane in place with heavy hand pressure or rollers during application.

4. **Sealing Edges:** Bituthene Waterproofing Membrane shall be applied over the edge of the slab or over the top of the foundation or parapet wall. If the membranes are terminated on the vertical surface, a reglet or counter flashing may be used or the membrane may be terminated directly on the vertical surface by pressing very firmly to the wall. Press edges with a metal or hardwood tool such as a hammer or knife handle. Apply a troweled bead of Bituthene Mastic to all vertical and horizontal terminations. Bituthene Liquid Membrane can be used as an alternative method at the General Contractor's option.
5. **Sealing Seams:** All edges and end seams must be overlapped at least 2-1/2". Apply succeeding sheets with a minimum 2-1/2" overlap and stagger end laps. Roll or press the entire membrane firmly and completely as soon as possible. Patch misaligned or inadequately lapped seams with Bituthene Membrane. Slit any fish mouths, overlap the flaps, and repair with a patch of Bituthene and press or roll in place. The edges of the patch shall be sealed with a troweling of mastic. Laps within 12" of all corners shall be sealed with a troweling of mastic.
6. **Corner Forming:** Outside corners must be free of sharp edges. Inside corners shall receive a fillet formed with Liquid Membrane, latex modified cement mortar equal to Daraweld C made by Grace mixed with cement mortar or epoxy mortar. Do not use fiber or wood cants. One of two methods may be used for treating corners at the General Contractor's option:
 - a. Apply Bituthene Liquid Membrane 6" in each direction from the corner and form a fillet with a minimum 3/4" face.
 - b. Install an 11" minimum strip of Bituthene Membrane centered on the corner. Install Bituthene Membrane over the treated inside and outside corners.
7. Over waterproofing, apply drainage composite board by adhering board to cured membrane using tape or adhesive per manufacturer's recommendations; lap all edges 4" and conform to the following:
 - a. Install drainage layer directly over the membrane. Start at the low points on the wall and shingle all laps to the flow of water.
 - b. Splice drainage panels together by butting longitudinal edges of adjacent sheets and peeling back fabric to expose the cores of the panels. Install precut "lock strips" consisting of 4 dimple x 5 dimple sections of the drainage panel centered on the joint between the panels and spaced every 10 dimples along the length of the joint. Snap dimples of "lock strip" to dimples of each panel and reattach fabric over the panel joint.
 - c. Cut the core of the drainage panels around penetrations, and cut an "X" in the filter fabric and tape the fabric to the sides of the penetration.
 - d. Cover all terminal edges of the drainage composite with an integral fabric flap by tucking the fabric around the edge of the core and adhering the fabric to the bottom of the core.

3.4 INSTALLATION OF WATERPROOFING FOR BLINDSIDE WALLS AND BELOW GRADE UNDERSLAB WATERPROOFING

- A. **General:** Install adhesive coated HDPE composite sheet according to waterproofing manufacturer's written instructions.

1. Install drainage layer directly over the membrane. Start at the low points on the wall and shingle all laps to the flow of water.
2. Splice drainage panels together by butting longitudinal edges of adjacent sheets and peeling back fabric to expose the cores of the panels. Install precut "lock strips" consisting of 4 dimple x 5 dimple sections of the drainage panel centered on the joint between the panels and spaced every 10 dimples along the length of the joint. Snap dimples of "lock strip" to dimples of each panel and reattach fabric over the panel joint.
3. Cut the core of the drainage panels around penetrations, and cut an "X" in the filter fabric and tape the fabric to the sides of the penetration.
4. Cover all terminal edges of the drainage composite with an integral fabric flap by tucking the fabric around the edge of the core and adhering the fabric to the bottom of the core.

B. Preparation

1. Surfaces to receive blind side membranes must be smooth and sound, with no gaps or voids in excess of 1/2 in. Earth and stone substrates must be compacted to produce an even, solid substrate. Surfaces to receive waterproofing shall be thoroughly dry and free of moisture.
2. General: Comply with manufacturer's instructions for preparing surface including joint or crack treatment.
3. Apply primer to substrate surfaces at rate recommended by manufacturer of primary waterproofing materials. Prime only area that will be covered by waterproofing membrane in same working day. Reprime areas not covered by waterproofing membrane within 24 hrs.

C. Wall Applications

1. Refer to manufacturer's literature for complete installation instructions but not limited to the following:
 - a. Apply Hydroduct 220 Drainage Composite to a point 6" below grade line. Fasten Hydroduct 220 to the adjacent buildings foundation wall or soil retention system.
 - b. Peel back bottom flap of filter fabric and place core behind discharge pipe. Wrap loose filter fabric over and around discharge pipe. Tuck excess filter fabric behind pipe. Fold excess filter fabric at top termination down between drainage composite and membrane.
 - c. Apply membrane with the HDPE film facing the soil retention system or adjacent foundation. Remove the release liner and fasten membrane to Hydroduct drainage composite with large head nails or staples. All nail heads or staples must be covered with overlapping sheets of membrane.
 - d. Apply succeeding sheets by overlapping the previous sheet 3 inches along the uncoated edge of the membrane.
 - e. Overlap the ends of the membrane 3 inches. Apply Preprufe Tape centered over the end lap and roll firmly. Remove release liner.
 - f. Seal all transition, penetrations, tie down bracing and other conditions with initial membrane layer plus manufacturer's recommended accessory materials, prior to application of the full membrane.

- g. Concrete must be poured within 30 days of membrane application. Protect membrane until concrete pour.
- h. If membrane ties into a vertical membrane, leave an additional 12" flap of Preprufe membrane to tie into Bituthene membrane.

D. Underslab Applications

1. Apply Hydroduct 660 drainage composite board as recommended by manufacturer over the compacted sub-grade.
2. Apply the membrane over the drainage composite board with the HDPE side facing the drainage composite board and the treated white coating surface facing the concrete to be poured. The membrane may be installed at any convenient length. Apply succeeding sheets by overlapping previous sheets 3" along the self-adhesive edge of the membrane. Remove the silicone coated release liner covering the membrane and roll the side lap to assure a tight seal.

3.5 SEAM REINFORCEMENT FOR HDPE COMPOSITE SHEETS ONLY

- A. Provide a 6 in. strip of modified bituminous sheet membrane (Bituthene 4000) centered behind all laps.
- B. At locations where a salvage edge is not present and at end laps, lap sheets 6 in., apply a 1/8 in. thick by 6 in. wide application of liquid membrane between sheets, to provide a 6 in. wide seal.
- C. Integration of old onto new pre-applied sheet membrane.
 1. Integration of Sheet Membrane onto Sheet Membrane that has been installed in excess of 30 days prior.
 - a. Lap sheets 12 in., apply a 1/8 in. thick by 12 in. wide application of fluid membrane between sheets, to provide a 12 in. wide seal at this location.
 - b. Install Waterproofing Tape centered at edge of lap and roll firmly into place with an approved roller.
 - c. Install additional Waterproofing Tape to cover white film that has been installed over 30 days prior.
 2. Repair of pre-applied sheet membrane
 - a. Scratch on white coating exposing underlying black surfing of Sheet Membrane: Install Waterproofing Tape at areas where the white coating of the membrane is damaged, including boot scuff marks and abrasions by rebar.
 - b. Damage or Puncture of Sheet Membrane: Install Patch of short Membrane set in Liquid Membrane. Patch must extend 3 in. in every direction around extent of damaged area. Install Waterproofing Tape centered over the edge of the patch. If the damaged area does not have 5 in. of sound material around it, inject Liquid Membrane into puncture until Liquid Membrane backs out, and proceed with patch as space allows.

3.6 CLEAN-UP

- A. Upon completion of the waterproofing system, the General Contractor shall remove all equipment, material and debris from the work and storage area, and leave those areas in an undamaged and acceptable condition.

END OF SECTION

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SECTION 072100 - THERMAL INSULATION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the thermal insulation as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Extruded polystyrene rigid insulation.
 - 2. Mineral wool board insulation.
 - 3. Closed-cell Spray foam insulation.
 - 4. Attachment devices.

1.3 RELATED SECTIONS

- A. Firestops and Smoke seals - Section 078413.
- B. Acoustical insulation - Section 092900.

1.4 SUBMITTALS

- A. Submit product data for each type of product indicated, including re-cycled content.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for insulation products.

1.5 REFERENCES

- A. ASTM C 518-76: Steady-State Heat Flux Measurements and Thermal Transmission properties.
- B. ASTM E 84-81A: Surface Burning Characteristics of Building Materials.
- C. ASTM C 951: Dimensional Stability

1.6 QUALITY ASSURANCE FOR FOAMED CEMENTITIOUS INSULATION

- A. Source Limitations: Obtain Foamed Cementitious Insulation through one source from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide Foamed Cementitious Insulation and related materials with the fire-test-response characteristics indicated below as determined by testing

and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of acceptable testing and inspecting agency.

1. Smoke Developed: 0.

2. Flame Spread: 0.

3. Fuel Contribution: 0.

C. Material and installation shall conform to applicable building code requirements of authorities having jurisdiction.

D. Applicator Certification and Experience

1. Applicator shall be certified by the Manufacturer.

2. Certification shall include training received from the Manufacturer.

3. Applicator shall possess minimum three (3) years' experience.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site ready for use in the manufacturer's original and unopened containers and packaging, bearing labels as to type and brand. Delivered materials shall be identical to approved samples.

B. Store materials under cover in a dry and clean location, off the ground. Remove materials which are damaged or otherwise not suitable for installation and replace with acceptable materials.

C. Take every precaution to prevent the insulation from becoming wet, cover with tarps or other weather/watertight sheet goods.

PART 2 PRODUCTS

2.1 EXTRUDED POLYSTYRENE (XPS) BOARD INSULATION FOR BELOW GRADE APPLICATIONS

A. Provide extruded polystyrene board insulation equal to "Styrofoam" manufactured by Dow Chemical Co., or equivalent product of Owens Corning, PACTIV Building Products, or approved equal conforming to ASTM C 578, Type IV, with a maximum flame spread and smoke developed indices of 75 and 450 respectively.

B. Insulation shall have an aged R value of not less than 5/inch; shall be 2" thick unless otherwise noted on the drawings.

2.2 MINERAL WOOL BOARD INSULATION FOR ABOVE GRADE WALL APPLICATIONS

A. Provide "RainBarrier 45" by Thermafiber, or equivalent of Dow Chemical Co., Roxul Inc., or approved equal, unfaced mineral wool board insulation, 2" thick, conforming to ASTM C 612; with maximum flame-spread and smoke-developed indexes of zero, per ASTM E 84; passing

ASTM E 136 for combustion characteristics. Nominal density 4.5 lb/cu. ft., Types IA and IB, and thermal resistivity (R value) of 4.2 per inch.

2.3 MINERAL-WOOL BLANKET INSULATION

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Rockwool.
 - 2. Thermafiber Owens Corning.
 - 3. Johns Manville
 - 4. Or approved equal.
- B. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 30 percent.
- C. Unfaced, Mineral-Wool Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
 - 1. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
- D. Reinforced-Foil-Faced, Mineral-Wool Blanket Insulation: ASTM C 665, Type III (reflective faced), Class A (faced surface with a flame-spread index of 25 or less per ASTM E 84); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim Kraft, or foil-scrim polyethylene.
 - 1. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.

2.4 SPRAY INSULATION

- A. Spray-Applied Foam Insulation: "JM Corbond IV" rigid closed-cell polyurethane insulation manufactured by Johns Manville, or equal by Icyene, Gaco or approved equal compliant with State Regulations; 2.2 lb./cu. ft. density material per ASTM D 1622; meets Class 1 requirements of ASTM E 84.
 - 1. R-Value shall be 7.1 per inch per ASTM C 518.
 - 2. Bond strength shall be greater than 100 psf per ASTM E 736.
 - 3. Product shall be Class 1 Class A per ASTM E 84/ UL 723.
 - 4. Product shall be tested in accordance with UBC 26-2 Test Method for the evaluation of Thermal Barriers (ASTM E 119).
 - 5. Product shall pass Full-Scale Corner Test.
 - 6. Provide manufacturer's written certification that product contains no asbestos.

- B. Provide ignition barrier coat DC315.
- C. Spray Insulation at Tight Spaces: Provide polyurethane foam insulation product to fill gaps, joints, etc. that both seals and insulates, equal to "Great Stuff Professional Foam" as manufactured by the Dow Chemical Company or approved equal.

2.5 ACCESSORIES

- A. Clips for Securing Insulation to Encountered Surfaces: Spindle anchor and washer type consisting of perforated metal plates with spindle welded to center and snap on washers. Spindle and washers shall receive a corrosion-resistant electro-zinc plating. Adhesives for securing clips in place shall be recommended by the approved clip manufacturer.
 - 1. Acceptable Manufacturers
 - a. Miracle Adhesives Corp.
 - b. Stic-Klip Mfg. Co., Inc.
 - c. Midwest Fasteners

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where thermal insulation is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION, GENERAL

- A. General
 - 1. Cooperate in the coordination and scheduling of the work of this section with the work of other sections so as not to delay job progress.
 - 2. Install insulation in as large components as practical and to cover entire areas indicated on the drawings, closely butted together at sides and ends, and against walls, beams, etc. Neatly fit and cut insulation around all projections such as pipes, conduits, hangers and all other elements encountered in the field, which will result in complete coverage of the scheduled areas.
 - 3. Discard, off the site insulation which becomes damaged during the course of installation, or is no longer in a physical condition to function for use intended, and replace with new material.
 - 4. Clean surfaces on which adhesives are used to secure the insulation in place of dirt, grime, grease, oil and other foreign materials, to assure that the surfaces are properly prepared to accept the bond of the approved adhesives.
 - 5. Exercise extreme care to avoid damage and soiling of faces on insulation units which will be exposed to view. Align joints accurately, with adjoining surfaces set flush.

6. Set vapor barrier faced units with vapor barrier to inside of construction, except as otherwise shown. Do not obstruct ventilation spaces. All joints in vapor barriers shall be sealed with 4" wide, foil faced duct tape to prevent vapor and air migration.
7. Where insulation is impaled on stick clips, provide clips not less than 3" from corners or edges and not more than 12" o.c.
8. Comply with manufacturer's instructions for the particular conditions of installation in each case. If printed instructions are not available or do not apply to the project conditions, consult the manufacturer's technical representative for specific recommendations before proceeding with the work.
9. Extend insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections which interfere with placement.
10. Apply a single layer of insulation to the required thickness, unless a double layer is required, to make up the total thickness shown.
11. Furnish mason trades rigid insulation to be installed within masonry cavity.

3.3 INSTALLATION OF BLANKET INSULATION FOR FRAMED CONSTRUCTION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- B. Mineral-Wool Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
 4. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
 5. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:
 - a. With faced blankets having stapling flanges, secure insulation by inset, stapling flanges to sides of framing members.
 - b. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.

6. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.
 - a. Exterior Walls: Set units with facing placed toward interior of construction as indicated on Drawings.

3.4 INSTALLATION OF SPRAY FOAM INSULATION

- A. Apply self-supported, spray-applied insulation according to manufacturer's written instructions. Do not apply insulation until installation of pipes, ducts, conduits, wiring, and electrical outlets in walls is completed and windows, electrical boxes, and other items not indicated to receive insulation are masked. After insulation is applied, make it flush with face of studs by using method recommended by insulation manufacturer.
- B. Field Quality control. Submit spray polyurethane foam field inspection and test reports for the following:
 1. The Certified Installer shall complete the Daily Work Record and record all information required including the results of the testing. The Daily work Record shall be kept on site for routine inspection. Copies of the daily Work Record shall be forwarded to the manufacturer, owner or owner's representative upon request.
 2. The costs incurred for daily testing and inspection by the Certified Installer and the completion of the Daily work Record shall be done by the Accredited Contractor.
 3. If required by the owner, arrange for site inspections by a qualified third party inspector. The frequency and cost of inspections shall be included in the bid at the owner's request. If the site inspection reveals any defects, the Accredited Contractor shall immediately rectify all such defects at his cost.
 4. The Certified Installer's daily work record shall verify conformance with the Thermal and Air Barrier Wall System Manufacturer's instructions, the standard ULC S705.2-02 Installation standard and this section of the project specification.
 - a. Follow Manufacturer guidelines for proper temperature settings regarding spray equipment as stated on Manufacturer product information sheets
 - b. Follow Manufacturer guidelines for proper spray polyurethane foam formulation based on substrate and ambient temperatures product will be applied to.
 - c. Test completed application daily for core density and cohesion/adhesion to substrate. Record results daily in test reports.
 - d. After product has properly cured, conduct tests to verify adhesion between the spray polyurethane foam and the substrate.
 - e. Conduct adhesion tests on all corners and building angles, at wall-to-slab junctions, and at wall-to-roof junctions.
 - f. Perform one adhesion test for every wall less than 100 feet [30 meters] in length. Perform two tests for every wall greater than 100 feet [30 meters] and less than 200 feet [60 meters] in length, with an additional test conducted for every additional 100 feet [30 meters], or part thereof, in wall length.

- g. Transition membranes shall be pull tested in accordance with the Certified Installer training program requirements before installing the spray polyurethane air barrier material.

3.5 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation will be subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

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SECTION 072191 POLYETHYLENE AIR BARRIER

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. The Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the air barrier as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:
 - 1. Air barrier applied over sheathing.
 - 2. Materials and installation to bridge and seal the following air leakage pathways and gaps:
 - a. Connections of the walls to the roof.
 - b. Connections of the walls to the foundations.
 - c. Seismic and expansion joints.
 - d. Openings and penetrations of window frames, storefront, curtain wall.
 - e. Door frames.
 - f. Piping, conduit, duct and similar penetrations.
 - g. All other air leakage pathways in the building envelope.

1.3 SUBMITTALS

- A. Submit shop drawings showing locations and extent of air barrier and details of all typical conditions, intersections with other envelope systems and materials, membrane counter-flashings, and details showing how gaps in the construction will be bridged, how inside and outside corners are negotiated and how miscellaneous penetrations such as conduits, pipes electric boxes and the like are sealed.
- B. Submit manufacturer's product data sheets, including manufacturer's printed instructions for evaluating, preparing, and treating substrate, temperature and other limitations of installation conditions, technical data, and tested physical and performance properties.
- C. Submit manufacturer's installation instructions.
- D. Submit certification of compatibility by air barrier manufacturer, listing all materials on the project that it connects to or that come in contact with it, including sealant as specified in Section 05400 for caulking joints between sheathing panels.
- E. Submit samples, 3" by 4" minimum size, of air barrier material.

1.4 GENERAL PERFORMANCE REQUIREMENTS

- A. Provide air barrier constructed to perform as a continuous air/weather barrier, and as a water drainage plane flashed to discharge to the exterior any incidental condensation or water penetration. Membrane shall accommodate movements of building materials by providing

expansion and control joints as required, with accessory air seal materials at such locations, changes in substrate and perimeter conditions.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Entity with a minimum of 5 years of successful experience in the installation of the specified air barrier system.
- B. Single-Source Responsibility: Obtain air barrier materials from a single manufacturer regularly engaged in manufacturing the product.
- C. Field-Constructed Mock-Ups: Prior to installation of air barrier, apply air barrier as follows to verify details under shop drawing submittals and to demonstrate tie-ins with adjoining construction, and other termination conditions, as well as qualities of materials and execution:
 - 1. Construct typical exterior wall panel, 8 feet long by 8 feet wide (of sheathed areas, incorporating back-up, cladding, window and doorframe and sill, insulation, flashing, building corner condition, and typical penetrations and gaps; illustrating materials interface and seals.
- D. Test mock-up in accordance with ASTM E 783 and ASTM E1105 for air infiltration.
- E. Manufacturer shall confirm all termination details and compatibility with materials being terminated to.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original packages with seals unbroken, labeled with manufacturer's name, product, date of manufacture, and directions for storage.
- B. Store materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by air barrier manufacturer. Protect stored materials from direct sunlight.
- C. Avoid spillage. Immediately notify Owner, Architect if spillage occurs and start clean up procedures.
- D. Clean spills and leave area as it was prior to spill.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Subject to compliance with requirements, provide air barrier products as manufactured by DuPont Weatherization Systems, Wilmington, DE (tel: 800-448-9835), or approved equal.
 - 1. Basis for Project Design: DuPont "Tyvek CommercialWrap".

2.2 MATERIALS

- A. Product Description (Tyvek CommercialWrap): A flash spunbonded olefin, non-woven, non-perforated secondary weather resistant barrier
- B. Performance Characteristics:

1. AATCC-127, Water Penetration Resistance, exceeded at 280.
2. TAPPI T-460, Gurley Hill (sec/100cc) Air infiltration at >1500 seconds.
3. ASTM E 96 Method B(g/m²-24hr.) Water vapor transmission of 200.
4. TAPPI T-41D, Basis weight of 2.7oz/yd.
5. ASTM E96 Method B, Water Vapor Transmission, 28 perms.
6. ASTM E1677, Air Retarder Material Standard Specification, Type I air barrier.

C. Sealing Tape/Fasteners:

1. DuPont Tyvek Tape, DuPont Weatherization Systems.
2. DuPont Tyvek Wrap Cap Screws, DuPont Weatherization Systems. 1-5/8" rust resistant screws with 2" diameter plastic cap.
3. Caulks and Sealants: Polyurethane or elastomeric sealants; one of the following:
 - a. OSI Quad Pro-Series, solvent release butyl rubber sealant.
 - b. DAP Dynaflex 230.
 - c. Other products as approved and recommended by air barrier manufacturer.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where air barrier membrane is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. Install air barrier after sheathing is installed and before windows and doors are installed. Install lower-level barrier prior to upper layers to ensure proper shingling of layers.
- B. Overlap air barrier at corners of building by a minimum of 12".
- C. Overlap air barrier vertical seams by a minimum of 6".
- D. Ensure barrier is plum and level with foundation, and unroll extending air barrier over window and door openings.
- E. Attach air barrier with screws with washers through sheathing board into metal stud framing.
- F. Prepare window and door rough openings as follows:
 - a. Prepare each window rough opening by cutting a modified "I" pattern in the air barrier.
 - 1). Horizontally cut air barrier along bottom of header.

- 2). Vertically cut air barrier down the center of window openings from the top of the window opening down to 2/3 of the way to the bottom of the window openings.
- 3). Diagonally cut air barrier from the bottom of the vertical cut to the left and right corners of opening.
- 4). Fold side and bottom flaps into window opening and fasten every 6". Trim off excess.
- b. Prepare each rough door opening by cutting a standard "I" pattern in the air barrier.
 - 1). Horizontally cut air barrier along bottom of door frame header and along top of sill.
 - 2). Vertically cut air barrier down the center of door openings from the top of the door opening (header) down to the bottom of the door opening (sill).
 - 3). Fold side flaps inside around door openings and fasten every 6". Trim off excess.

G. Tape all horizontal and vertical seam of Air Barrier with DuPont Tyvek Tape.

H. Seal all tears and cuts in Air Barrier with DuPont Tyvek Tape.

3.3 PROTECTING AND CLEANING

- A. Protect air barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.
- B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.
- C. Protect air barrier from exposure to the elements as required by the manufacturer.
- D. Remove any masking materials after installation. Clean any stains on materials that would be exposed in the completed work using procedures as recommended by manufacturer.
 1. Schedule work to ensure that the air barrier system is covered as soon as possible after installation. Protect air barrier system from damage during subsequent operations.

END OF SECTION

SECTION 072711 NON-PERMEABLE SELF-ADHERED AIR/VAPOR BARRIER MEMBRANE

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the non-permeable self-adhered air/vapor barrier membrane as shown on the drawings and/or specified herein for door and window flashings.

1.3 RELATED SECTIONS

- A. Unit masonry - Section 042000.
- B. Cold-Formed Metal Framing – Section 054000.
- C. Rough Carpentry – Section 061000.
- D. Building insulation - Section 072100.

1.4 PERFORMANCE REQUIREMENTS

- A. Material Performance: Provide materials which have an air permeance not to exceed 0.004 cubic feet per minute per square foot under a pressure differential of 0.3 in. water (1.57 pounds per square foot) (0.02 liters per second per square meter at 75 Pascals) when tested according to ASTM E 2178, and a vapor permeance of 0.1 perms or less when tested according to ASTM E 96.
- B. Assembly Performance: Provide a continuous air and vapor barrier assembly that has an air leakage not to exceed 0.040 cubic feet per square foot per minute under a pressure differential of 0.3 in. water (1.57 pounds per square foot) (0.20 liters per second per square meter at 75 Pascals) when tested in accordance with ASTM E 2357. Assembly shall perform as a liquid drainage plane flashed to discharge condensation or water penetration to the exterior. Assembly shall accommodate movements of building materials by providing expansion and control joints as required, with accessory air and vapor seal materials at such locations, changes in substrate and perimeter conditions.
 - 1. Assembly shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the envelope without damage or displacement, and shall transfer the load to the structure.
 - 2. Assembly shall not displace adjacent materials under full load.
 - 3. Assembly shall be joined in an airtight and flexible manner to the air barrier material of adjacent assemblies, allowing for the relative movement of assemblies due to thermal and moisture variations and creep, and anticipated seismic movement.

- C. Connections to Adjacent Materials: Provide connections to prevent air leakage and vapor migration at the following locations:
1. Foundation and walls, including penetrations, ties and anchors.
 2. Walls, windows, louvers or doors.
 3. Different wall assemblies, and fixed openings within those assemblies.
 4. Walls, floor and roof across construction, control and expansion joints.
 5. Walls, floors and roof to utility, pipe and duct penetrations.
 6. Seismic and expansion joints.
 7. All other leakage pathways in the building envelope.

1.5 SUBMITTALS

- A. Quality Assurance Program: Submit evidence of current accreditation and certification under the Air Barrier Association of America's (ABAA) Quality Assurance Program. Submit accreditation number of contractor and certification number of installers.
- B. Product Data: Submit manufacturer's product data, manufacturer's printed instructions for evaluating, preparing, and treating substrate, temperature and other limitations of installation conditions, technical data, and tested physical and performance properties.
1. Submit letter from primary materials manufacturer indicating approval of products not manufactured by primary manufacturer.
 2. Include statement that materials are compatible with adjacent materials proposed for use.
 3. Submit reports indicating that field peel-adhesion test on all materials to which sealants are adhered have been performed and the changes made, if required, to other approved materials, in order to achieve successful adhesion.
- C. Samples: Submit clearly labeled samples, 6" x 6" minimum size of each material specified.
- D. Shop Drawings of Mock-Up: Submit shop drawings of proposed mock-ups showing plans, elevations, large-scale details, and connections to the test apparatus.
- E. Field Test Results of Mock-Up: Submit test results of air leakage test and water leakage test of mock-up in accordance with specified standards, including retesting if initial results are not satisfactory.
- F. Shop Drawings: Submit shop drawings showing locations and extent of air and vapor barrier assemblies and details of all typical conditions, intersections with other envelope assemblies and materials, membrane counter-flashings, and details showing how gaps in the construction will be bridged, how inside and outside corners are negotiated, how materials that cover the air and vapor barrier are secured with air-tight condition maintained, and how miscellaneous penetrations such as conduits, pipes, electric boxes and similar items are sealed.

- G. Compatibility: Submit letter from manufacturer stating that materials proposed for use are permanently chemically compatible and adhesively compatible with adjacent materials proposed for use. Submit letter from manufacturer stating that cleaning materials used during installation are chemically compatible with adjacent materials proposed for use.

1.6 QUALITY ASSURANCE

- A. Air Barrier Contractor Qualifications: Currently accredited by the Air Barrier Association of America (ABAA) whose applicators are certified in accordance with the ABAA Quality Assurance Program. Contractor must have a minimum 5 years experience with specified materials on projects of similar size and scope.
- B. Manufacturer: Obtain primary materials from a single manufacturer regularly engaged in manufacturing air and vapor barrier membranes. Obtain secondary materials from a source acceptable to the primary materials manufacturer.
- C. Accredited Laboratory Testing for Materials: Laboratory accredited by International Accreditation Service Inc. (IAS), American Association for Laboratory Accreditation (A2LA), or the Standards Council of Canada (SCC).
- D. VOC Regulations: Provide products which comply with applicable regulations controlling the use of volatile organic compounds.
- E. Preconstruction Meeting: Convene a minimum of two weeks prior to commencing Work of this Section. Agenda shall include, at a minimum, construction and testing of mock-up, sequence of construction, coordination with substrate preparation, materials approved for use, compatibility of materials, coordination with installation of adjacent and covering materials, and details of construction. Attendance is required by representatives of related trades including covering materials, substrate materials and adjacent materials.
- F. Field Quality Assurance: Implement ABAA Quality Assurance Program requirements. Cooperate with ABAA inspectors and independent testing and inspection agencies engaged by the Owner. Do not cover air and vapor barrier membrane until it has been inspected, tested and accepted.
- G. Mock-Ups: Build mock-up representative of primary exterior wall assemblies and glazing assemblies including backup wall and typical penetrations as acceptable to the Architect. Mock-up shall be approximately 8 feet long by 8 feet high and include all components in the exterior wall assembly.
- H. Mock-Up Tests for Air and Water Infiltration: Test mock-up for air and water infiltration in accordance with ASTM E 1186 (air leakage location), ASTM E 783 (air leakage quantification), and ASTM E 1105 (water penetration). Use smoke tracer to locate sources of air leakage. If deficiencies are found, reconstruct mock-up and retest until satisfactory results are obtained. Deficiencies include air leakage beyond values specified, uncontrolled water leakage, unsatisfactory workmanship.
 - 1. Perform the air leakage tests and water penetration test of mock-up prior to installation of insulation board cladding and trim but after installation of all masonry anchors and fasteners for cladding and trim and after installation of other penetrating elements.
 - 2. ASTM E 1186: No visible air leakage.

3. ASTM E 783: Less than 0.04 cfm/sf at 0.3 in. of water over mock-up area. For these tests, air leakage through the window-to-wall interface is considered, but air leakage through the window unit itself is not (window unit should be covered during tests).

- I. Mock-Up Tests for Membrane Adhesion: Perform a qualitative test by cutting a 6" x 6" square in the membrane. If the membrane cannot be peeled back by hand without tearing or stretching the membrane, the adhesion is adequate.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original packages with seals unbroken, labeled with manufacturer's name, product, date of manufacture, and directions for storage.
- B. Store materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by air and vapor barrier membrane manufacturer. Protect stored materials from direct sunlight.
- C. Handle materials in accordance with manufacturer's recommendations.

1.8 PROJECT CONDITIONS

- A. Temperature: Install air and vapor barrier within range of ambient and substrate temperatures recommended by air and vapor barrier manufacturer. Do not apply air and vapor barrier to a damp or wet substrate or where ambient or surface temperatures are above 40 deg. F.
- B. Field Conditions: Do not install air and vapor barrier in snow, rain, fog, or mist. Do not install air and vapor barrier when the temperature of substrate surfaces and surrounding air temperatures are below those recommended by the manufacturer.

1.9 WARRANTY

- A. Material Warranty: Provide manufacturer's standard product warranty, for a minimum 5 years from date of Substantial Completion.
- B. Installation Warranty: Provide installer's 2-year warranty from date of Substantial Completion, including all components of the air and vapor barrier assembly, against failures including loss of air tight seal, loss of watertight seal, loss of adhesion, loss of cohesion, failure to cure properly.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Sheet Air and Vapor Barrier: Self-adhering membrane composed of flexible facing material coated completely and uniformly on one side with adhesive material, formed into uniform, flexible sheets, interleaved with disposable release liner that is removed prior to application. Use regular or low-temperature formulation depending on site conditions, within temperature ranges specified by manufacturer. Provide related accessories including primer, seam tape, mastic, fluid and sealant recommended by manufacturer. Subject to compliance with requirements, provide one of the following:

1. Grace Construction Products:

- a. Air and Vapor Barrier Membrane: Perm-A-Barrier, 40 mils thick.
- b. Water-Based Primer: Perm-A-Barrier WB Primer.
- c. Solvent-Based Primer: Bituthene Primer B-2. (Use only if water based primer does not provide sufficient adhesion to substrate),
- d. Counterflashing for Masonry Through-Wall Flashings: Perm-A-Barrier Flashing.
- e. Mastics, Adhesives and Tapes: As recommended by manufacturer.
- f. Liquid Membrane: Bituthane Liquid Membrane.

2.2 AUXILIARY MATERIALS

- A. Membrane at Transitions in Substrate and Connections to Adjacent Elements: Neoprene, ASTM D 2000 Designation 2BC415 to 3BC620, 50 to 65 mils (1.3 mm to 1.6 mm) thick with non-corrosive termination bars and fasteners. Adhesive and lap sealant as recommended by manufacturer.
- B. Transition Membrane Between Air and Vapor Barrier Membrane and Roofing and Other Adjacent Materials: Comply with both air and vapor barrier manufacturer's recommendations and material manufacturer's recommendations.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions under which air and vapor barrier assemblies will be applied, with Installer present, for compliance with requirements.
 - 1. Verify that surfaces and conditions are suitable prior to commencing work of this section. Do not proceed with installation until unsatisfactory conditions have been corrected. Starting of work means acceptance of substrate.
 - 2. Do not proceed with installation until after minimum concrete curing period recommended by air and vapor barrier manufacturer.
 - 3. Ensure that the following conditions are met:
 - a. Surfaces are sound, dry, even, and free of oil, grease, dirt, excess mortar or other contaminants
 - b. Concrete surfaces are cured and dry, smooth without large voids, spalled areas or sharp protrusions.
 - c. Masonry joints are flush and completely filled with mortar, and all excess mortar sitting on masonry ties has been removed.
 - 4. Verify substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263 and take suitable measures until substrate passes moisture test.
 - 5. Notify Architect in writing of anticipated problems using air and vapor barrier over substrate prior to proceeding.

3.2 SURFACE PREPARATION

- A. Clean, prepare, and treat substrate according to manufacturer's written instructions. Ensure clean, dust-free, and dry substrate for air and vapor barrier application.
 - 1. Prime masonry, concrete substrates with conditioning primer.
 - 2. Prime glass-fiber surfaced gypsum sheathing an adequate number of coats to achieve required bond, with adequate drying time between coats.
 - 3. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through air and vapor barrier and at protrusions.

3.3 INSTALLATION

- A. Self-Adhering Sheet Air and Vapor Barrier: Install membrane to provide continuity throughout the building envelope. Install materials in accordance with manufacturer's recommendations and the following:
 - 1. Apply primer at rate recommended by manufacturer prior to membrane installation. Allow primer to dry completely before membrane application. Apply as many coats as necessary for proper adhesion. Do not apply primer below 25 deg. F.
 - 2. When membrane is properly positioned, press into place and roll membrane with roller immediately after placement.
 - 3. Apply membrane sheets to shed water naturally without interception by a sheet edge, no reverse laps are permitted.
 - 4. Position subsequent sheets of membrane applied above so that membrane overlaps the membrane sheet below by a minimum of 3 inches, unless greater overlap is recommended by manufacturer. Roll into place with roller.
 - 5. Overlap horizontally adjacent pieces a minimum of 3 inches, unless greater overlap is recommended by manufacturer. Roll seams with roller.
 - 6. Seal around all penetrations with termination mastic, liquid membrane, extruded silicone sealant, membrane counterflashing or other procedure in accordance with manufacturer's recommendations.
 - 7. Connect air and vapor barrier in exterior wall assembly continuously to the air barrier of the roof, to concrete below-grade structures, to windows, curtain wall, storefront, louvers, exterior doors and other intersection conditions and perform sealing of penetrations, using accessory materials and in accordance with the manufacturer's recommendations and the project details.
 - 8. At changes in substrate plane, provide transition material (bead of sealant, membrane counterflashing, liquid membrane or other material recommended by manufacturer) under membrane to eliminate all sharp 90 degree inside corners and to make a smooth transition from one plane to another. Transition material must be fully cured prior to membrane application.

9. As shown on drawings, provide mechanically fastened non-corrosive metal sheet to span gaps in substrate plane and to make a smooth transition from one plane to the other. Metal sheet shall be continuously supported by substrate.
10. At through-wall flashings, provide an additional 6-inch wide strip of manufacturer's recommended membrane counterflashing to seal top of through-wall flashing to membrane. Seal exposed top edge of strip with bead of mastic as recommended by manufacturer.
 - a. The through wall flashing shall be integrated with the wall membrane. A strip sealing the top edge of the flashing shall have its own exposed top.
11. At deflection and control joints, provide backup for the membrane to accommodate anticipated movement. Membrane shall be designed to avoid adhesion over the joint and allow for free movement.
12. At expansion and seismic joints provide transition to the joint assemblies.
13. At end of each working day, seal top edge of membrane to substrate with termination mastic.
14. Do not allow materials to come in contact with chemically incompatible materials.
15. Do not expose membrane to sunlight longer than as recommended by the manufacturer.
16. Inspect installation prior to installing insulation enclosing assembly and repair punctures, damaged areas and inadequately lapped seams with a patch of membrane lapped as recommended by manufacturer.

3.4 FIELD QUALITY CONTROL

- A. Owner's Inspection and Testing: Cooperate with Owner's testing agency. Allow access to work areas and staging. Notify Owner's testing agency in writing of schedule for Work of this Section to allow sufficient time for testing and inspection. Do not cover Work of this Section until testing and inspection is accepted.

3.5 PROTECTING AND CLEANING

- A. Protect air and vapor barrier assemblies from damage during application and remainder of construction period, according to manufacturer's written instructions.
 1. Coordinate with installation of materials which cover air and vapor membrane, to ensure exposure period does not exceed that recommended by the air and vapor barrier manufacturer.
- B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction and acceptable to the primary material manufacturer.

END OF SECTION

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SECTION 073113 ASPHALT SHINGLES

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the asphalt shingles as shown on the Drawings and specified herein, including, but not limited to, the following:
 - 1. Asphalt roofing shingles for repair and replacement.
 - 2. Underlayments.
 - 3. Metal flashing.
 - 4. Roofing accessories.

1.3 RELATED SECTIONS

- A. Wood Framed Construction – Section 061000.
- B. Carpentry - Section 062000.
- C. Sheet metal work - Section 076200.

1.4 SUBMITTALS

- A. Product data for each type of product specified, including details of construction relative to materials, dimensions of individual components, profiles, textures, and colors.
- B. Samples for initial selection purposes in form of manufacturer's sample finishes showing full range of colors and profiles available.

1.5 QUALITY ASSURANCE

- A. Fire Performance Characteristics: Provide products that are identical to those tested for the specified fire performance characteristics by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspection organization.
 - 1. Fire Resistance Ratings: As indicated by reference to design designations in UL "Fire Resistance Directory."
- B. Wind Load Criteria: ASCE-7 or the International Building Code.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the site in manufacturer's unopened bundles or containers with labels intact.

- B. Handle and store materials at site to prevent water damage, staining, or other physical damage. Store roll goods on end. Comply with manufacturer's recommendations for job site storage, handling and protection.

1.7 PROJECT CONDITIONS

- A. Weather Conditions: Proceed with work only when existing and forecasted weather conditions will permit work to be installed in compliance with manufacturer's recommendations and when substrate is completely dry.

1.8 WARRANTY

- A. Special Project Warranty: Submit a written warranty, executed by manufacturer, agreeing to repair or replace asphalt shingles that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, deformation or deterioration of shingles beyond normal weathering. This warranty shall be in addition to, and not a limitation of, other rights the Owner may have against the Contractor under the Contract Documents.

1. Warranty period is 30 years after project acceptance by Owner.
2. Include all elements of roof assembly in 30-year warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide products of one of the following manufacturers:
 1. GAF; Timberline (Basis of Design).
 2. Certainteed Corp.
 3. Owens Corning Corp.
 4. Tamko.

2.2 ASPHALT ROOFING SHINGLES

- A. Shingles, UL Class "A" Heavy Weight: Mineral-surfaced, match existing exposure and type, self-sealing asphalt fiberglass strip shingles complying with ASTM D 3018, ASTM D 3161, and ASTM D 3462. Provide shingles bearing UL 790 Class "A" external fire exposure label and UL 997 "Wind Resistant" label.
 1. Color: to match existing.
- B. Hip and Ridge Shingles: Manufacturer's standard factory precut units to match shingles.

2.3 ACCESSORIES

- A. Felt Underlayment: No. 30; unperforated organic felt complying with ASTM D 226, Type I, 36" wide; or GAF "DeckArmor."

- B. Asphalt Plastic Cement: Non-asbestos fibrated asphalt cement complying with ASTM D 4586, designed for trowel application.
- C. Shingling Nails: Aluminum or hot dip galvanized steel, 10 or 12 gauge, sharp-pointed, conventional roofing nails with barbed shanks, minimum 3/8" diameter head, and of sufficient length to penetrate 3/4" into solid decking or to penetrate through plywood sheathing. Material of nails in contact with flashing shall match materials selected for flashing to prevent galvanic action.
- D. Metal Drip Edge: Minimum 0.032" aluminum sheet, brake-formed to provide 3" roof deck flange and 1-1/2" fascia flange with 3/8" drip at lower edge. Furnish in lengths of 8 or 10 feet.
- E. Metal Flashing: As specified in Section 076200.
- F. Self-Adhering Roof Underlayment: Minimum 40 mil thick, self-adhering, polymer modified bituminous sheet membrane, complying with ASTM D 1970. Provide primer when recommended by underlayment manufacturer. Provide "Vycor Ice and Water Shield" made by W. R. Grace or GAF "StormGuard" or "Weather Watch."
 - 1. Install underlayment 3'-0" up roof from interior face of exterior wall around perimeter and at all eaves, valleys, low-pitch roofs, rake edges, confined rake edges, and where shown.
- G. Roof To Wall Vent: Manufacturer's standard, rigid section high-density polypropylene ridge vent with snow screen design; for use under ridge shingles. Provide Roof To Wall vent as manufactured by Cor-A-Vent, Inc.
- H. Ridge Vent: Manufacturer's standard, rigid section high-density polypropylene ridge vent with snow screen design; for use under ridge shingles. Provide V-400E ridge vent as manufactured by Cor-A-Vent, Inc.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where asphalt shingle roofing is to be installed and notify the Architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected by the Contractor in a manner acceptable to the Architect.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application. Cover knot holes or other minor voids in substrate with sheet metal flashing secured with non-corrosive roofing nails.
- B. Coordinate installation with flashings and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roofing have been installed and are securely fastened against movement.

3.3 INSTALLATION

- A. Comply with manufacturer's installation instructions and recommendations, but not less than recommended by "The NRCA Steep Roofing Manual."

- B. Felt Underlayment: Apply one ply of felt underlayment horizontally over entire surface to receive asphalt shingles, lapping courses a minimum of 2", end laps a minimum of 4", and hips a minimum of 6". Fasten felt with sufficient number of roofing nails or non-corrosive staples to hold underlayment in place until asphalt shingle application. Provide double layer of felt at roof slopes between 2:12 and 4:12.
- C. Waterproof Underlayment: Apply waterproof underlayment at eaves and as shown on drawings. Cover deck from eaves at least 36" inside exterior wall line.
- D. Install asphalt shingles beginning at lower end with a starter strip of roll roofing or inverted shingles with tabs removed. Fasten shingles in pattern, with weather exposure, and using number of fasteners per shingle as recommended by manufacturer. Use vertical and horizontal chalk lines or premarked underlayment to ensure straight coursing.
 - 1. Cut and fit asphalt shingles at ridges and edges to provide maximum weather protection. Provide same weather exposure at ridges as specified for roof. Lap shingles at ridges to shed water away from direction of prevailing wind. Fasteners at ridges shall be of sufficient length to penetrate sheathing as specified.
 - 2. Set shingle pattern as recommended by shingle manufacturer for shingle selected.
- E. Flashing: Install metal flashing in accordance with details and recommendations of the "Asphalt Roofing" section of "The NRCA Steep Roofing Manual."
- F. Vents: Install continuous vents over asphalt shingles according to manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing.

3.4 ADJUSTING

- A. Replace any damaged materials installed under this Section with new materials meeting specified requirements.

END OF SECTION

SECTION 073129 WOOD SHINGLE ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the wood shingle roofing as shown on the drawings and specified herein.
 - 1. Cedar shingles.
 - 2. Snow guards, copper pad type.
 - 3. Fasteners and accessories.
 - 4. Air infiltration barrier.

1.2 RELATED SECTIONS

- A. Restoration Treatment for Historic Woodwork – Section 060312.

1.3 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Conform to the recommendations of the Cedar Shake & Shingle Bureau (CSSB), New Roof Construction Manual.
- C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockups for wood shingles including accessories of dimensions as directed by the Architect.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 SUBMITTALS

- A. Product Data: Submit technical product data, installation instructions and recommendations from shingle manufacturer, including data that materials comply with requirements.
- B. Samples: Submit full range of samples for color and texture selection. After selection, submit two (2) full-size shingles for verification of each color, shape, and texture selected. Include hip and ridge unit.

1. Submit 12" x 12" sample of roof ventilation underlayment.
2. Submit 12" x 12" sample of self-adhering underlayment.
3. Submit sample of prefabricated ridge and eave vent systems.
4. Sample of snow guard.

1.5 MOCKUP

- A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 1. Build mockups for wood products including accessories.
 - a. Size: 5'-0" x 5'-0"
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's unopened, labeled containers.
- B. Store materials to avoid water damage, and store rolled goods on end. Comply with manufacturer's recommendations for job-site storage and protection.
- C. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary.
- E. Wood shall be protected so that moisture content is within 6% - 8%.

1.7 JOB CONDITIONS

- A. Substrate: Proceed with shingle work only after substrate construction and penetrating work have been completed.
- B. Weather Conditions: Proceed with shingle work only when weather conditions are in compliance with manufacturer's recommendations and when substrate is completely dry.

1.8 WARRANTY

- A. Special Warranty: Contactor agrees to repair or replace wood shingles that fail in materials within specified warranty period. Material failures include manufacturing defects that result in leaks.

1. Material Warranty Period: 30 years for shingles from date of Substantial Completion.

1.9 EXTRA MATERIALS

- A. Furnish 100 sq. ft. of each type of wood shingle used in the Project, in unbroken bundles, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

PART 2 PRODUCTS

2.1 WOOD SHINGLE MATERIALS

- A. #1 Grade Blue Label Alaskan Yellow Cedar, fire treated, 100% Edge Grain, Tapersawn, 5/8" butts.
 1. Wood shingles shall be kiln dried to approximately 12% humidity.
- B. Building Paper: IKO AM Heavy Duty Asphalt Felt (#30 felt); No. 30 ASTM D226 TYPE II or No. 30 ASTM D4869 Type IV.
- C. Ventgrid: As directed by Architect, refer to drawings.
- D. Self-Adhering, Rubberized-Asphalt Sheet Underlayment: ASTM D 1970, minimum of 40 mils thick; slip-resisting, polyethylene-film-reinforced top surface laminated to rubberized asphalt adhesive, with release-paper backing; cold applied. Provide "Slopesield SA" by Vaproshield or approved equal.
 1. Use the underlayment directly over roof sheathing.
- E. Flashing: Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item.
 1. Drip Edges: Fabricate in lengths not exceeding 10 feet with 2-inch roof-deck flange and 1-1/2-inch fascia flange with 3/8-inch drip at lower edge.
- F. Ridge Vent: Rapid Ridge 7 Ridge Vent (BOD) or approved equal.
- G. Rain Diverter: Provide at roof valleys; as manufactured by Rainhandler or equal.
- H. Nails: Type 316 stainless steel ring or spiral-threaded shanks, head diameter 13/16" to 17/64" with a slightly checked surface, nail heads shall be flat casing, 6d nail minimum to allow 1-1/2" penetration into sheathing back-up.
 1. Provide a minimum of two (2) nails per shingle.
- I. Provide snow guard in copper pad type, if indicated on the drawings, designed to be installed without penetrating shingles, and complete with predrilled holes or hooks for anchoring, as manufactured by Berger Bros. Co., Alpine SnowGuards, or approved equal.
- J. Zinc Strips: Provide at ridge and 6'-0" on center tucked between shingle course.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where wood roof shingles are to be installed and notify the Architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 PREPARATION OF SUBSTRATE

- A. Clean substrate of any projections and substances detrimental to shingling work. Cover knot-holes or other minor voids in substrate with sheet metal flashing secured with roofing nails.
- B. Coordinate installation of shingles with flashing and other adjoining work to ensure proper sequencing. Do not install shingle roofing until all vent stacks and other penetrations through roofing have been installed and are securely fastened against movement.

3.3 INSTALLATION - GENERAL

- A. Comply with instructions and recommendations of shingle manufacturer and the requirements of "New Roof Construction Manual" of the Cedar Shake and Shingle Bureau.
- B. Fasteners shall not extend to underside of plywood and be exposed.

3.4 GENERAL INSTALLATION GUIDELINES

- A. Always work from the bottom to the top.
- B. To calculate the number of courses to be installed:
 - 1. Measure the surface area to be covered and divide it by the desired exposure.
 - 2. Adjust the exposure to produce even courses.
 - 3. Leave at least 4" for the last course at the top.
- C. Draw a line or use a board to align shingles horizontally.
- D. For the first row always lay a double course of shingles and offset them by at least 1-1/2" so that joints do not line up. The bottom course shall extend at least 1" from the top of the foundation eaves.
- E. Use two fasteners per shingle at about 3/4" from each edge and at 1" above the butt line of the overlapping shingle. If shingles are wider than 8" use two additional fasteners driven 1" apart near the center of the shingles.
- F. Leave a gap of approximately 1/8" to 1/4".
- G. Joints of successive courses must always be offset by at least 1-1/2" to prevent water build-up. Treat shingle imperfections the same way.
- H. Never allow joints from any 3 consecutive courses to line up.

- I. Angles, Corners, Openings, Edges: Flashing is required for all of the these features. Flashing shall extend approximately 4" to 8" on either side to concealing structural cutting imperfections that may occur. When installing flashing, care must be taken not to drive nails near the center. Joints in infiltration-prone areas shall be caulked with silicone as specified in section 079200.
- J. Hips and Ridges
 - 1. Choose same width shingles, specifically. Alternately overlap all shingles on both sides. The first row must be a double course. Using two nails (approximately 2" long), install hip and ridge caps.
 - 2. Use prefabricated hip and ridge units.
 - 3. On shingle roofs of less than 6" 12 slope, flashing shall extend at least 11" on each side.
- K. Nails shall be driven flush but not so that the nail head crushes the wood. They shall be placed approximately $\frac{3}{4}$ " to 1" from the side edges of the shingles and approximately 1-1/2" above the butt line of the following course.

3.5 INSTALLATION OF ROOF SHINGLES

- A. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install at locations indicated on Drawings, lapped in direction to shed water. Lap sides not less than 3-1/2 inches. Lap ends not less than 6 inches staggered 24 inches between courses. Roll laps with roller. Cover underlayment within seven days, unless otherwise recommended by the manufacturer.
- B. Ventgrid: Install following manufacturers requirements.
- C. Install drainage mat perpendicular to roof slope in parallel courses, butting edges and ends to form a continuous layer, and fasten to roof deck.
- D. Install zinc strips per Cedar Shake and Shingle Bureau.
- E. Double shingles at first course, projecting 1-1/2" beyond sheathing; space adjoining shingles 1/4" to 1/2" apart, nailing each shingle with two nails space 3/4" from edge and 1" above butt line of subsequent course; stagger joints minimum of 1-1/2" in succeeding courses.

3.6 EDUCATION FOR OWNER

- A. Contractor shall go thru the required maintenance and care requirements for roof system per Cedar shake and Shingle Bureau, including but not limited to the cleaning of gutters, removal pf branches removing of excessive branches.

END OF SECTION

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SECTION 074624 - WOOD SHINGLE SIDING

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the wood shingle siding as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:
 - 1. Custom cedar shingles.
 - 2. Cedar trim.
 - 3. Fasteners and accessories.

1.3 RELATED SECTIONS

- A. Carpentry - Section 062000.

1.4 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Conform to the recommendations of the Western Red Cedar Lumber Association.
- C. Provide 36" x 36" sample panel of shingles prior to installation, for Architect's review.
- D. Contractor shall construct a 5'-0" x 5'-0" mock up of shingle roofing. Multiple color sample mixes/colors (minimum of 5) shall be applied for Architect's review. Final finish shall be selected from these mockups to achieve the weathered gray appearance Architect trying to achieve.

1.5 SUBMITTALS

- A. Submit the following samples for approval:
 - 1. 12" long sample of shingles.
 - 2. 12" long sample of trim.
 - 3. Full size samples of cedar shingles (minimum six (6)).

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation, and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.
- C. Wood shall be protected so that moisture content is within 6% - 8%.

PART 2 – PRODUCTS

2.1 GRADE STAMPS

- A. Identified lumber by the grade stamp of the Western Wood Products Association (WWPA), or such other grade stamp as is approved in advance by the Architect.

2.2 WOOD MATERIALS

- A. Provide materials in the quantities needed for the work as shown on the drawings, and meeting or exceeding the following standards of quality:
 - 1. Cedar Shingles: 16" Certigrade Number 1 Blue Label Cedar Shingles with 7" exposure.
 - 2. Provide kiln-dried lumber siding complying with DOC PS 20.
- B. Finish: To be approved through mockup procedure.

2.3 ACCESSORIES

- A. Cedar Breather behind all surfaces.
- B. Vapor Permeable Membrane: See Section 072700.
- C. Nails: Stainless steel, ring or spiral-threaded shanks, head diameter 13/16" to 17/64" with a slightly checked surface, nail heads shall be flat casing, 6d nail minimum to allow 1-1/2" penetration into stud/sheathing back-up.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where wood shingle siding to be installed and notify the Architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. Staple building paper to plywood sheathing lapping 4" at ends and edges.
- B. Apply siding by nailing at each stud, placed where nail is concealed but next to each piece of siding. Countersink the nail and putty over. Nailing shall be snub but not tight; do not overdrive. At tongue and groove, provide concealed nailing.

- C. Shingles shall be installed tight to minimum 1/16" gaps. Pre-drill nail holes at ends to prevent splitting. Joints in adjacent rows shall be staggered.
- D. Install shingles, trim, etc. straight, true, level, plumb and firmly anchored in place following manufacturer's recommendations.

3.3 CLEANING

- A. Keep the premises in a neat, safe, and orderly condition at all times during execution of this portion of the work, free from accumulation of saw dust, cut-ends, and debris.

END OF SECTION

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SECTION 075560 - COLD FLUID APPLIED MEMBRANE ROOFING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the cold fluid applied reinforced polyurethane roofing and waterproofing membrane, for both exposed membrane conditions and pavers and pedestals and all other ancillary waterproofing work including but not limited to installation of drains, pipe flashings, penetration flashings, sealants and metal work as specified, and including but not limited to, the following:
 - 1. Adhered cold fluid-applied reinforced polyurethane waterproofing system including, membrane, penetration flashings, base flashings, and expansion joints.
 - 2. Substrate preparation, cleaning, leveling and patching.
 - 3. Temporary waterproofing and priming.
 - 4. Waterproofing membrane installation.
 - 5. Flashing installation and expansion joint installation.
 - 6. Protective surfacing.
 - 7. Alkalinity protection.
 - 8. Drainage board.
 - 9. Insulation installation.

1.3 WIND UPLIFT STANDARD

- A. Wind Resistance and Stability of Insulation Board: Insulation board producer/manufacture is responsible for determining thickness of ballast adequately to counter floating action, and withstand wind uplift at the project site. Thickness and/or weight of ballast indicated on drawings or in specifications are minimum values.
- B. The required ballast shall be per Dupont/DOW' "TECH SOLUTIONS 508.3".

1.4 REFERENCES

- A. National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual.
- B. ACI-308 - Recommended Practice for Curing Concrete

- C. ASTM D 638 - Test Methods for Tensile Properties of Plastics
- D. ASTM D 4258 - Standard Practice for Surface Cleaning Concrete for Coatings
- E. ASTM D 4259 - Standard Practice for Abrading Concrete
- F. ASTM D 4541 - Method for Pull-Off Strength of Coatings using Portable Adhesion Tester
- G. ASTM E 96(A) - Test Methods of Moisture Transmission of Material
- H. ASTM E 108, ANSI/UL 790 for Fire Resistance
- I. International Concrete Repair Institute Guideline 03732 Concrete Surface Preparation
- J. Steel Structures Painting Council (SSPC)

1.5 SUBMITTALS FOR REVIEW

- A. Membrane System Product Data: Provide current standard printed product literature indicating characteristics of membrane materials, flashing materials, components, and accessories product specification and installation.
- B. Product Samples: Submit product samples of green roof media, perimeter gravel, membrane and flashing materials showing color, texture, thickness and surfacing representative of the proposed system for review and approval by the Owners Representative and Architect.
- C. Submit sample copies of both the Manufacturer and Applicator warranties for the periods stipulated. Each specimen must be a preprinted representative sample of the issuing company's standard warranty for the system specified.
- D. Submit copies of current Material Safety Data Sheets (MSDS) for all components of the work.
- E. Membrane Shop Drawings: Submit shop drawings of cold fluid-applied reinforced polyurethane showing all a project plan, size, flashing details, and attachment for review and approval by the Owners Representative and Membrane Manufacturer.
- F. Submit a letter signed by the manufacturer and Contractor acknowledging that the submitted roofing system complies with ASCE-7, for wind speed requirements based on height of structure and geographic location of project.

1.6 QUALITY ASSURANCE

- A. Membrane Supplier: Company specializing in manufacturing the products specified in this section with ten (10) years documented experience. Membrane Manufacturer shall submit the following certifications for review:
 - 1. Substrates and conditions are acceptable for purpose of providing specified warranty.
 - 2. Materials supplied shall meet the specified requirements.
- B. Applicator: Company specializing in performing the work of this section with (3) years documented experience and approved by system manufacturer/supplier for warranted membrane and vegetated system installation. Applicator shall submit the following certification for review:

1. Applicator shall submit documentation from the membrane manufacturer/vegetated system supplier to verify contractor's status as an approved applicator for warranted installations.
- C. Evaluate moisture content of substrate materials. Constructor shall determine substrate moisture content throughout the work and record with Daily Inspection Reports or other form of reporting acceptable to the Owner or designated Representative, and Membrane Manufacturer.
- D. Random tests to determine tensile bond strength of membrane to substrate shall be conducted by the Contractor at the job site using an Elcometer Adhesion Tester Model 106 or similar device, or by the performance of a manual pull test. Contractor shall perform tests at the beginning of the Work, and at intervals as required to assure specified adhesion with a minimum of three (3) tests per 5000 square feet. Smaller areas shall receive a minimum of three (3) tests. Test results shall be submitted to the Owner or his designated Representative and the Membrane Manufacturer. Contractor shall immediately notify the Owner or his designated Representative and Membrane Manufacturer in the event bond test results are below specified values.
 1. Adequate surface preparation will be indicated by tensile bond strength of membrane to substrate greater than or equal to 220 psi (1.5 N/mm²), as determined by use of an adhesion tester.
 2. Adequate surface preparation will be indicated by 135° peel bond strength of membrane to substrate such that cohesive failure of substrate occurs before adhesive failure of membrane/substrate interface.
 3. In the event the bond strengths are less than the minimum specified, additional substrate preparation is required. Repeat testing to verify suitability of substrate preparation.
- E. Monitor quantities of installed materials. Monitor application of resin mixture, reinforcing fleece and flashing. Perform Work in accordance with manufacturer's instructions.
- F. Mock-up areas shall be used to determine required methods and tools to obtain degree of substrate preparation required by the membrane manufacturer. Conduct tests as required to verify that substrate preparation meets specified requirements. Tests shall include, but are not limited to, tensile bond strength and moisture content of substrate. In addition, mock-up areas shall be used to confirm application practices in the installation of the membrane and vegetative system assembly.
 1. Prepare and clean a three (3) foot (0.9 m) by three (3) foot (0.9 m) area of each substrate material type.
 2. Submit findings in writing to Owner or his designated Representative and Membrane Manufacturer.
 3. Mock-up areas shall be maintained for quality control for the entire project.

1.7 REGULATORY REQUIREMENTS

- A. Conform to applicable building and jurisdictional codes for roofing/waterproofing assembly and fire resistance requirements.
- B. Comply with requirements of OSHA, NIOSH or local governing authority for work place safety.

- C. Comply with authority or agency “Confined Space Policy” during and throughout all work to be performed.

1.8 PRE-INSTALLATION MEETING

- A. Convene a pre-installation meeting at the job site (1) week before starting work of this section. Require attendance of parties directly affecting work of this section, including but not limited to, Architect and Owner's Representative, Roofing/Waterproofing/Landscaping Contractor, and Membrane Manufacturer/Vegetative System Representative. Review roofing/waterproofing/vegetative system (all of these to be reviewed) preparation and installation procedures, coordination and scheduling required with related work, and condition and structural loading limitations of deck/substrate.

1.9 FIELD INSPECTION SERVICES

- A. Manufacturer’s technical representative shall provide the following inspections of the membrane application:
 - 1. Jobstart inspection at the beginning of each phase of the project, to review special detailing conditions and substrate preparation.
 - 2. Periodic in-progress inspections throughout duration of the project to evaluate membrane and flashing application.
 - 3. Final punch-list inspection at the completion of each phase of the project prior to installation of any surfacing or overburden materials.
 - 4. Warranty inspection to confirm completion of all punch list items, followed by 24 hr. flood test to confirm watertightness of installed waterproofing membrane.
 - 5. In-progress inspection during vegetative system installation to confirm tray, perimeter metal securement, and irrigation system installation prior to growing media installation.

1.10 DELIVERY, STORAGE, AND PROTECTION

- A. The Contractor together with the Owner or his designated Representative shall define a storage area for all components. The area shall be cool, dry, out of direct sunlight, and in accordance with manufacturer’s recommendations and relevant regulatory agencies. Materials shall not be stored in quantities that will exceed design loads, damage substrate materials, hinder installation or drainage.
- B. Store solvent-bearing solutions, resins, additives, inhibitors or adhesives in accordance with the MSDS and/or local fire authority. After partial use of materials replace lids promptly and tightly to prevent contamination.
- C. Rolls of fleece reinforcing materials shall be stored horizontally on platforms sufficiently elevated to prevent contact with water and other contaminants. DO NOT use rolls that are wet, dirty or have damaged ends. Fleece reinforcing materials must be clean, dry, and free of all contaminants.
- D. Roofing/waterproofing materials must be kept dry at all times. If stored outside, raise materials above ground or roof level on pallets and cover with a tarpaulin or other waterproof material. Plastic wrapping installed at the factory should not be used as outside storage covers.

- E. Follow manufacturer's directions for protection of vegetated system materials prior to and during installation. Do not use materials that have been damaged to the point that they will not perform as specified.
- F. Copies of all current MSDS for all components shall be kept on site. Provide any and all crew members with appropriate safety data information and training as it relates to the specific chemical compound he or she may be expected to deal with. Each crew member shall be fully aware of first-aid measures to be undertaken in case of incidents. Comply with requirements of OSHA, NIOSH or local governing authority for work place safety.

1.11 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply roofing/waterproofing membrane during or with the threat of inclement weather.
- B. Application of cold fluid-applied reinforced polyurethane roofing/waterproofing membrane may proceed while air temperature is between 40°F (5°C) and 85°F (30°C) providing the substrate is a minimum of 5°F above the dew point.
- C. When ambient temperatures are at or expected to fall below 50°F (10°C), or reach 85°F (30°C) or higher, follow Membrane System Manufacturer's recommendations for weather related additives and application procedures.
- D. Ensure that substrate materials are dry and free of contaminants. DO NOT commence with the application unless substrate conditions are suitable. Contractor shall demonstrate that substrate conditions are suitable for the application of the materials.
- E. Odor control and elimination measures are not typically necessary, but if required by the Owner or his designated Representative, Contractor shall implement odor control and elimination measures prior to and during the application of the roofing/waterproofing materials. Control/elimination measures shall be field tested at off-hours and typically consists of one (1) or a multiple of the following measures:
 - 1. Sealing of air intakes with activated carbon filters. Install filters in accordance with requirements and recommendations of the filter manufacturer. Seal filters at joints and against building exterior walls to prevent leakage of unfiltered air where required due to size of intake opening. Provide track system to secure filters.
 - 2. Erection and use of moveable enclosure(s) sized to accommodate work area(s) and stationary enclosure for resin mixing station. Enclosure shall be field constructed or pre-manufactured of fire retardant materials in compliance with local code requirements in accordance with requirements of the Owner or his designated Representative. Equipment enclosure(s) with mechanical air intake/exhaust openings and Odor Control Air Cleaners, as required to clean enclosed air volume and to prevent odor migration outside the enclosure. Exhaust opening shall be sealed with activated carbon filter.
 - 3. Placement of odor elimination stations inside and outside of the enclosure(s) as required by field condition, in coordination with the Owner or his designated Representative.
 - 4. Protection of Contractor personnel and occupants of the structure and surrounding buildings as necessary to comply with requirements of OSHA, NIOSH and/or governing local authority.

- F. When disposing of all refuse or unused materials, observe all EPA, OSHA or local disposal requirements.

1.12 COORDINATION AND PROTECTION

- A. Coordinate the work with the installation of associated metal flashings, accessories, appurtenances, etc. as the work of this section proceeds.
- B. Building components shall be protected adequately (with tarp or other suitable material) from soil, stains, or spills at all hoisting points and areas of application. Contractor shall be responsible for preventing damage from any operation under its Contract. Any such damage shall be repaired at Contractor's expense to Owner's satisfaction or be restored to original condition.
- C. Provide barricades, retaining ropes, safety elements (active/passive) and any appropriate signage required by OSHA, NIOSH, and NSC and/or the Owner or designated Representative.
- D. Protect finished roofing/waterproofing membrane from damage by other trades. Do not allow waste products containing petroleum, grease, acid, solvents, vegetable or mineral oil, animal oil, animal fat, etc. or direct steam venting to come into direct contact with the membrane.

1.13 WARRANTY

- A. Manufacturer's Premier Warranty: Provide (20) year manufacturer's premier warranty under provisions of this section. This warranty provides for cost of labor and materials for loss of watertightness, limited to amounts necessary to effect repairs necessitated by either defective material or defects in related installation workmanship, with no dollar limitation ("NDL"). Warranty to include basic removal and replacement of vegetated overburden and pavers as required for performance of warranty repairs to the waterproofing membrane.
- B. Waterproofing Contractor's Warranty: Provide (5) year "Applicator Maintenance Warranty" covering workmanship for all work of this section including installation of membrane, flashings, metal work, and roofing/waterproofing accessories.
- C. Submit (2) executed copies of both the manufacturer and applicator warranties for the periods stipulated, starting from the date of substantial completion. Each warranty must be signed by an authorized representative of the issuing company.

1.14 MATERIAL SUBSTITUTIONS

- A. Materials proposed for use in the performance of the work that are not specified herein must be submitted to the Owner/Owner's Representative for evaluation no later than ten days prior to bid.

PART 2 PRODUCTS

2.1 GENERAL

- A. The products herein specified are totally pre-engineered products of the listed manufacturer and establish criteria for the approval of substitutions. Products must be part of a virtually odorless, pre-engineered, low-VOC, fully-reinforced, cold-fluid-applied liquid waterproofing membrane system, equivalent in function, quality, composition and method of application to be considered

for approval as an "Approved Substitute". Substitute materials must meet or exceed the physical performance characteristics of the specified materials.

2.2 MANUFACTURERS - MEMBRANE

- A. The products herein specified are totally pre-engineered products of the listed manufacturer and establish criteria for the approval of substitutions. Products must be part of a virtually odorless, pre-engineered, low VOC, fully reinforced, cold fluid applied liquid waterproofing membrane system, equivalent in function, quality, composition and method for application to be considered for approval as an "Approved Substitute". Substitute materials must meet or exceed the physical characteristics of the specified materials.

1. Basis of Design: Siplast Parapro fully reinforced PMMA resin, for use in an adhered waterproofing system, or approved equal by Siplast, Laurencos or approved equal.

- B. Physical Properties:

Property	Typical Value	Test Method
Color	Gray-Green	-
Physical state	Cures to solid	-
Nominal thickness (165 fleece)	70 mils	-
Tensile strength @ break	120 lb/in	ASTM D 751
Elongation	50%	ASTM D 751
Tearing strength	5.0 lbs	ASTM D 751
Puncture resistance	140 lbf	FTMS 101-2031
Dimensional stability	0.1%	ASTM D 1204
Water absorption	2.2%	ASTM D 471
Surface hardness	Shore A 85	ASTM D 2240
Water vapor transmission	0.04 perms	ASTM E 96
Usage time*	30 minutes	-
Rainproof after*	6 hours	-
Solid to walk on after*	24 hours	-
Solid to drive on with air rubber tires after*	48 hours	-
Overburden may be applied after	2 days	-
Completely hardened after	3 days	-
Crack spanning	2mm/0.08 inch	-
Resistance to temperatures up to (short term)	250°C/482°F	-

2.3 FLASHINGS

- A. Membrane Flashings: A composite of the same resin material as field membrane with manufacturer's recommended fleece reinforcement.

2.4 ACCESSORIES

- A. Primer: Epoxy primer for use in improving adhesion of membrane to cementitious/masonry substrate surfaces. Monitor application rate and adjust depending on substrate absorbency.

- B. Accelerator: As required by manufacturer, an additive specifically designed to accelerate the resin reaction time at ambient temperatures below 50°F (10°C). Continuously monitor substrate surface temperatures.
- C. Tools, Accessories, and Cleaners: Supplied and/or approved by membrane manufacturer for product installation.
- D. Topcoat Surfacing Aggregate: Silica sand, ceramic-coated quartz, or specialty aggregate shall be washed, kiln-dried, and dust-free with the following size specification (provide where drawings call for traffic sandcasting):

- 1. Aesthetic/Fire Rating: 0.3 - 1.0 mm
- 2. Alkalinity/Adhesion Key: 0.5 - 1.2 mm
- 3. Pedestrian Traffic: 0.4 - 1.0 mm
- 4. Light Vehicular Traffic: 0.5 - 1.2 mm

- E. Leveling and Patching Aggregate: Silica sand shall be washed, kiln-dried, and dust-free, suitable for troweling or pourable self-leveling, round grain or angular with the following size specification:

- 1. For voids less than 1" in depth: 0.3 - 0.6 mm
- 2. For voids 1" to 2" in depth: 0.5 - 1.2 mm

Mixing Proportions shall be a ratio of resin to sand at 1:2 by volume or as approved by membrane manufacturer.

- F. Backer Rod: Expanded, closed-cell polyethylene foam designed for use with cold-applied joint sealant.
- G. Caulking: Single component, non-sag elastomeric polyurethane sealant, as recommended or supplied by membrane manufacturer for use in making airtight and watertight seals where required.
- H. Wood Nailers and Cant Strips: New wood nailers and cant strips shall be pressure treated for rot resistance (e.g., "Wolmanized" or "Osmose K-33"), #2 or better lumber. Asphaltic or creosote treated lumber is not acceptable.
- I. Miscellaneous Fasteners: FM-approved and appropriate for purpose intended, length required for thickness of material, with metal plates, and approved by membrane system manufacturer.
- J. Drains: Spun/cast aluminum or cast iron roof drain with strainer/grate, strainer, as supplied or approved by membrane manufacturer.
- K. Temporary and Night Sealant: As recommended or required by membrane manufacturer.

2.5 INSULATION COVER BOARD (WHERE CONVENTIONAL ROOF)

- A. Cover Board (Durock, USG Roof Cement Board, and Permabase): High compressive strength underlayment board consisting of aggregated Portland cement slurry with polymer-coated glass fiber mesh, with the following characteristics:

1. Board Weight 3.0 lb/sq. ft.
2. Board Size 48 x 96 inches.
3. Board Thickness 1/2 inch.
4. Thermal Conductivity K factor of 1.92 as determined by ASTM C 177.
5. Board Edges Square

2.6 INSULATION

- A. Extruded Polystyrene rigid board insulation, three (3) layers of 2" thick each, minimum 60 psi compressive strength (ASTM D 1621), no greater than .1% water absorption (ASTM C 272), R value of 5.0 h. ft². F/Btu per inch, meeting ASTM C 578, Type VII – "Plaza Mate" made by Dupont or approved equal.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck/substrate openings, curbs, and protrusions through deck/substrate, wood cant strips and reglets are in place and solidly set.
- C. Verify deck/substrate is structurally supported, secure and sound.

3.2 PREPARATION OF SUBSTRATE

- A. General: Surfaces to be prepared as a substrate for the new waterproofing system as follows:
 1. The Contractor shall determine the condition of the existing structural deck/substrate. All defects in the deck or substrate shall be corrected before new waterproofing work commences. Areas of deteriorated deck/substrate, porous or other affected materials must be removed and replaced with new to match existing.
 2. Prepare flashing substrates as required for application of new waterproofing membrane flashings.
 3. Inspect substrates, and correct defects before application of new waterproofing. Fill all surface voids greater than 1/8 inch wide with an acceptable fill material.
 4. Remove all ponded water, snow, frost and/or ice from the work substrate prior to installing new waterproofing materials.
 5. The final substrate for waterproofing shall be clean, dry and free of loose, spalled or weak material including coatings, mineral aggregate and flood coat/gravel surfacing, oil, grease, contaminants, abrupt changes in level, waterproofing agents, curing compounds and free of projections which could damage membrane materials.
- B. Concrete:

1. New concrete shall have cured a minimum of 28 days in accordance with ACI-308, or as approved by Waterproofing Manufacturer's Technical Department.
2. New or existing concrete shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, bituminous products and previous waterproofing materials.
3. New or existing concrete shall be dry with a maximum moisture content of five (5) percent. Determinations of moisture content shall be performed by the Contractor. Contractor shall be responsible to perform periodic evaluations of moisture content during the work. Moisture evaluation results shall be submitted in writing to the Owner or his designated Representative and Waterproofing manufacturer for acceptance.
4. Where required, concrete shall be abrasively cleaned in accordance with ASTM D 4259 to provide a sound substrate free from laitance. Achieve an open concrete surface in accordance with ICRI surface profiles CSP 3-5. When using mechanical methods to remove existing waterproofing products or surface deterioration, the surface profile is not to exceed ¼ inch (peak to valley).
5. The substrate shall be sound and all spalls, voids and blow holes on vertical or horizontal surfaces must be repaired prior to placement of the primer coat. Spalls and other deterioration shall be repaired in accordance with the requirements of the Owner or his designated Representative and Membrane manufacturer.
6. Areas of minor surface deterioration of 0.25" (6 mm) or greater in depth shall be repaired to prevent possible ponding of the system, leading to excessive usage of primer and resin.
7. Extent and location of thin surface patching shall require approval of the Owner or his designated Representative and Waterproofing Manufacturer prior to the application of any system component.
8. For concrete materials with a compressive strength of less than 3,500 psi contact Waterproofing Manufacturer Technical Department for substrate preparation requirements.

C. Masonry:

1. Walls shall be built with hard kiln dried brick or waterproof concrete block construction.
2. Areas of soft or scaling brick or concrete, faulty mortar joints, or walls with broken, damaged or leaking coping shall be repaired in accordance with the requirements of the Owner or his designated Representative and Flashing Membrane Manufacturer.

D. Steel/Metal:

1. Clean and prepare metal surfaces to near white metal in accordance with SSPC - SP3 (power tool clean) or as required by membrane manufacturer. Extend preparation a minimum of three (3) inches beyond the termination of the membrane flashing materials. Notch steel surfaces to provide a rust-stop.
2. In addition to cleaning, all metal surfaces shall be abraded to provide a rough open surface. A wire brush finish is not acceptable.

- E. Other Flashing Surfaces: Remove all contaminants as required by membrane manufacturer. Surface preparation shall be performed by means approved by Owner or his designated Representative.
- F. Finish Leveling, Patching and Crack Preparation:
 - 1. General: Use manufacturers recommended primer/resin mix or patching material for all concrete and masonry substrate finish leveling, crack and wall/deck preparation and patching.
 - 2. Concrete and Masonry Substrate Leveling and Patching: Substrate conditions are to be evaluated by the Contractor, the Owner, or his designated Representative, and Membrane manufacturer. Perform leveling and patching operations as follows:
 - a. Level uneven surfaces with a leveling mixture of primer and approved kiln-dried silica sand or manufacturers approved patching material. Spread and plane this compound with a squeegee and trowel to achieve a flat surface.
 - b. Fill cavities with a patching mixture of primer and approved kiln-dried sand or patching material in manufactureres recommended ratio.
 - c. Silica sand must be kept absolutely dry during storage and handling.
 - d. Any surface to be leveled or filled must first be primed with an appropriate primer.
 - 3. Joint and Crack Preparation: Joints, cracks and fractures in the structural deck/substrate shall be prepared as defined below prior to installation of the waterproofing membrane.
NOTE: Joints, cracks, and fractures may telegraph through the waterproofing membrane.
 - a. Non-Moving Cracks: Determine that crack is non-moving. Clean out crack by brushing and oil-free compressed air. Fill crack with polyurethane sealant. Allow for a minimum of twelve (12) hours cure or as required by sealant Manufacturer.
 - b. Moving Cracks: Determine that crack is moving. Clean out crack by brushing and oil-free compressed air. Fill crack with polyurethane sealant. Allow for a minimum of twelve (12) hours cure or as required by sealant Manufacturer. Apply resin and min. 4 inch (10 cm) wide strip of membrane (resin and fleece) in strict accordance with Membrane manufacturer's written instructions.

3.3 PRIMER APPLICATION

- A. General:
 - 1. Mix and apply two-component primer in strict accordance with written instructions of Membrane Manufacturer. Use only proprietary materials, as supplied by the membrane manufacturer.
 - 2. The substrate surface must be dry, with any remaining dust or loose particles removed using clean, dry, oil-free compressed air, industrial vacuum, cloth wipe or a combination of methods.
 - 3. Do not install primer on any substrate containing newly-applied and/or active asphalt, coal-tar pitch, creosote or penta-based materials unless approved in writing by Membrane Manufacturer. Some substrates may require additional preparation before applying primer.

4. Do not thin primer. Determine required primer coverage for each substrate material/condition and apply in strict accordance with written instructions of Membrane Manufacturer.
5. Mix only that amount of primer components A & B that can be used within manufacturers stated open time.

B. Application of Primer:

1. Apply primers in strict accordance with written instructions of Membrane Manufacturer. Use only approved materials, as supplied by the membrane manufacturer.
2. Do not thin primer. Determine required primer coverage for each substrate material/condition and apply in strict accordance with written instructions of Membrane Manufacturer.
3. Apply primer direct in one step utilizing a brush or paint roller. Do not allow ponding.
4. Where required by manufacturer, apply kiln-dried sand into the final coat of primer while still wet at the rate of 20 lbs. per 100 square feet.
5. Allow primer to cure in accordance with individual membrane manufacturers requirements prior to applying waterproofing membrane.
6. Do not apply primer past the required extent of the membrane flashings termination.
7. Exposure of the primer beyond manufacturers overcoat period or premature exposure to moisture may require removal and application of new primer. DO NOT apply new primer over primer exposed beyond manufacturers stated overcoat period, primer prematurely exposed to moisture, or primer used as temporary waterproofing, unless approved in writing by the Membrane Manufacturer.

C. Disposal of Primer:

1. Cured primer may be disposed of in standard landfills. This is accomplished by thoroughly mixing all components.
2. Uncured primer is considered a hazardous material and must be handled as such, in accordance with local, state and federal regulation. Do not through uncured resin away.

3.4 MEMBRANE APPLICATION

A. General:

1. Mix and apply cold fluid-applied reinforced polyurethane waterproofing membrane in strict accordance with written instructions of Membrane Manufacturer. Use only proprietary membrane resins and materials, as supplied by the membrane manufacturer.
2. The primed substrate surface shall be dry, with any remaining dust or loose particles removed using clean, dry, oil-free compressed air, industrial vacuum, cloth-wipe or a combination.
3. Protect all areas where membrane has been installed. Do not work off installed membrane during application of remaining work before forty-eight (48) hours of curing. Movement

of materials and equipment across installed membrane is not acceptable. If movement is necessary, provide complete protection of affected areas.

4. Closely follow the Membrane Manufacturer's recommendation for hot and cold weather application. Monitor surface and ambient temperatures, including the effects of wind chill.

B. Application of Resin/Fleece

1. Apply mixed resin to the prepared surface at the membrane manufacturer's specified rate. The resin should be rolled or brushed liberally and evenly onto the surface using a broad, even stroke.
2. Roll out dry polyester fleece onto the liquid resin mix, making sure the SMOOTH SIDE IS FACING UP (natural unrolling procedure), avoiding any folds and wrinkles. The fleece will begin to rapidly saturate with the liquid resin mix. Use a medium nap roller or brush to work the resin into the fleece, saturating from the bottom up, and eliminating air bubbles, wrinkles, etc. White spots are indications of unsaturated fleece or lack of adhesion. It is important to correct these faults before the resin cures.
3. Apply additional liquid resin mix on top of fleece at the membrane manufacturer's specified rate to complete the saturation of the fleece. Roll this final coating into the fleece, which will result in a glossy appearance. The fleece can only hold so much resin and all excess should be rolled forward to the unsaturated fleece, eliminating ponding or excessive build-up of the resin. Any excess resin left on the top of the fleece will weather and peel off. The correct amount of resin will leave no whiteness in fleece and there will be a slightly fibrous surface texture. The final resin coating should be smooth and uniform with no dry fleece, entrapped air, or wrinkles.
4. Prevent contact between mixed/unmixed resin and new/existing membrane. If any unmixed resin contacts membrane surface remove immediately and clean thoroughly with a cloth rag.
5. At all fleece seams, allow a 2" (5 cm) overlap for all side joints and a 4" (10 cm) overlap for all end joints.
6. At membrane tie-offs, clean in-place membrane with MEK (methyl ethyl ketone) solvent once resin has cured. Allow solvents to fully evaporate before application of new resin.

C. Disposal of Resin:

1. Cured resin may be disposed of in standard landfills. This is accomplished by thoroughly mixing all components.
2. Uncured resin is considered a hazardous material and must be handled as such, in accordance with local, state and federal regulation. Do not throw uncured resin away.

3.5 FLASHING APPLICATION

A. General:

1. Install flashing system in accordance with the requirements/recommendations of the Membrane manufacturer and as depicted on standard drawings and details. Provide system with base flashing, edge flashing, penetration flashing, counter flashing, and all other flashings required for a complete watertight system.

2. Wherever possible, install the flashings before installing the field membrane to minimize foot traffic over newly installed field membrane.
3. All membrane flashings shall be installed concurrently with the waterproofing membrane as the job progresses. Temporary flashings are not allowed without prior written approval from the Membrane manufacturer. Should any water penetrate the new waterproofing membrane because of incomplete flashings, the affected area shall be removed and replaced at the Contractor's expense.
4. Provide a minimum vertical height of 8" for all flashing terminations. Flashing height shall be at least as high as the potential water level that could be reached as a result of a deluging rain and/or poor slope. Do not flash over existing through-wall flashings, weep holes and overflow scuppers.
5. All flashings shall be terminated as required by the Membrane Manufacturer.
6. Where alkalinity protection is required, install manufacturer's recommended products as follows:
 - a. Kemper Systems: Install two applications of EP primer and one application of approved broadcast mineral aggregate surfacing over the completed membrane wherever stone, concrete, or masonry elements will be placed directly over the membrane.
 - b. Sikalastic RoofPro Systems: Sikalastic 624/644AR resin shall be used in lieu of 641 Resin wherever stone, concrete, or masonry elements will be placed directly over the membrane.

B. Metal Flashing – General:

1. Metal flashings shall be fabricated in accordance with the current recommendations of SMACNA and in accordance with standard drawings and project details.
2. Metal flashing flanges to which membrane is to be bonded shall be a minimum of four (4) inches in width, and secured to the substrate six (6) inches on center staggered with fasteners appropriate to the substrate type. The flanges shall be provided with a roughened surface that has been cleaned of all oil and other residue.
3. Metal edges that will be overlaid with membrane shall be provided with a 1/4" min. hemmed edge.
4. Apply primer, resin and fleece to metal flange, extending membrane to outside face of metal edging, and to vertical face of metal base/curb flashing.

C. Membrane Flashing – General:

1. Membrane flashings shall be fabricated with primer appropriate for the substrate surface, resin of the same base chemical type as the field membrane, and fleece of the same weight as the field membrane unless specified otherwise.
2. Primer, resin, and fleece mixing and application methods as specified for field membranes are also suitable for membrane flashing.
3. Fleece shall overlap 2" (5 cm) minimum for all joints. Fleece shall be cut neatly to fit all flashing conditions without a buildup of multiple fleece layers. Work wet membrane with

a brush or roller to eliminate blisters, openings, or lifting at corners, junctions, and transitions.

D. Pipes, Conduits, and Unusually Shaped Penetrations:

1. Flash all penetrations using cold fluid-applied reinforced polyurethane waterproofing membrane. Flashing material shall be the same resin used in the field membrane with manufacturer's recommended fleece reinforcement.
2. Flashing is typically constructed as a two-part assembly consisting of a vertical wrap and a horizontal target patch. There must be a minimum of a two (2) inch (5 cm) overlap between vertical and horizontal flashing components.

E. Drains and Scuppers:

1. Acceptable drain and scupper materials are cast iron, cast aluminum, and copper.
2. Connect new drains and scuppers to existing storm sewer system.
3. Alternatively, replace all broken or damaged parts of existing drains and scuppers, or provide and install an acceptable insert.
4. Flash drains and scuppers using cold fluid-applied reinforced polyurethane waterproofing membrane. Flashing material shall be the same resin used in the field membrane with manufacturer's recommended fleece reinforcement.
5. Flashing material shall extend four (4) inches minimum onto drain, scupper, or insert flange.
6. Install clamping ring if provided as part of the drain or scupper design. Install a strainer basket to prevent debris from clogging the drainage line.

F. Hot Stacks:

1. Protect the membrane components from direct contact with steam or heat sources when the in-service temperature exceeds 150 degrees F. In all such cases flash to an intermediate "cool" sleeve.
2. Fabricate "cool" sleeve in the form of a metal cone using galvanized metal in accordance with Membrane manufacturer's details.
3. Flash all penetrations using cold fluid-applied reinforced polyurethane waterproofing membrane. Flashing material shall be the same resin used in the field membrane with 165 fleece reinforcement.
4. Flashing is typically constructed as a two part assembly consisting of a vertical wrap and a horizontal target patch. There must be a minimum of a two (2) inch (5 cm) overlap between vertical and horizontal flashing components.

G. Flexible Penetrations:

1. Provide a weathertight gooseneck of round cross-section for each penetration or group of penetrations. Set in water cut-off mastic and secure to the structural substrate.

2. Acceptable gooseneck material is copper, of a sheet weight appropriate for the application.
3. Flash all penetrations using cold fluid-applied reinforced polyurethane waterproofing membrane. Flashing material shall be the same resin used in the field membrane with manufacturer's recommended fleece reinforcement.
4. Flashing is typically constructed as a two-part assembly consisting of a vertical wrap and a horizontal target patch. There must be a minimum of a two (2) inch (5 cm) overlap between vertical and horizontal flashing components.

H. Walls, Curbs and Base Flashings

1. Wall, curb and base flashings shall be installed to solid substrate surfaces only. Adhering to gypsum-based panels, cementitious stucco, synthetic stucco, wood or metal siding, and other similar materials is not acceptable.
2. Flash all walls, curbs and base flashings using cold fluid-applied reinforced polyurethane waterproofing membrane. Flashing material shall be the same resin used in the field membrane with manufacturer's recommended fleece reinforcement.
3. Reinforce all transition locations and other potential wear areas with a four (4) inch wide manufacturer's recommended polyester fleece bottom layer evenly positioned over the transition prior to installing the exposed flashing layer.
4. Reinforce all inside and outside corners with a four (4) inch diameter conical piece of manufacturer's recommended fleece prior to installing the exposed flashing layer.
5. All pins, dowels and other fixation elements shall be flashed separately with a vertical flashing component prior to installing the exposed flashing layer.
6. Extend flashing a minimum of four (4) inches onto the field substrate surface.

I. Drip Edges and Gravel Stops

1. Metal drip edges and gravel stops shall be installed to solid substrate surfaces only. Securement to gypsum-based panels, cementitious stucco, synthetic stucco, wood or metal siding or coping, and other similar materials is not acceptable.
2. Flash all drip edges and gravel stops by extending the field membrane all the way to the edge of the exposed face prior to installing the metal edging. Strip in the metal flange with a separate 8-inch wide strip of membrane adhered to both the securement flange and to the field membrane.
3. For conditions where water infiltration behind the exposed drip edge or gravel stop face is possible, install a separate manufacturer's recommended polyester fleece bottom layer positioned behind the face area and extending a minimum of four (4) inches past the securement flange onto the field substrate prior to installing the drip edge or gravel stop.

J. Field Fabricated Control or Expansion Joint Flashing

1. Control or expansion joints in excess of two (2) inches in width require the use of a separate engineered joint system.

2. Control or expansion joints two (2) inches or less in width may be flashed with two layers of cold fluid-applied reinforced polyurethane waterproofing membrane and a compressible foam or rubber insert. Use manufacturer's recommended polyester reinforcing fleece bottom layer and polyester fleece top layer.
3. Grind or otherwise bevel the inside edges of the joint opening to provide a smooth transition edge for the fleece.
4. Flashing typically consists of manufacturer's recommended polyester reinforcing fleece bottom layer looped into the joint as a cradle, a compressible foam or rubber insert at 25% compression fitted into the joint, and manufacturer's recommended polyester fleece top layer applied over the joint. Extend both fleece layers four (4) inches minimum onto the field substrate on both sides of the joint.
5. Apply the field membrane over the entire joint area.

K. Electrical Conduit, Gas Lines and Lightning Protection

1. Supports for electrical conduit and gas lines greater than one (1) inch in diameter require the use of a separate engineered support system.
2. Supports for electrical conduit and gas lines one (1) inch or less in diameter, and bases for lightning protection rods and cable, can be adhered directly to the membrane surface with a single-component, high quality polyurethane sealant.

3.6 SURFACING AND FINISHES

A. Kiln-Dried Aggregate Finish Surfacing

1. Where specified, provide and install approved kiln-dried silica sand, or other approved mineral surfacing to achieve an aesthetic and/or non-skid surface.
2. Broadcast specified and approved sand or aggregate in excess into a bonding coat application of manufacturer's recommended resin applied over clean, freshly-cured membrane at the manufacturer's recommended rate. Aggregate shall be applied at the rate of appx. 60 lbs. per 100 square feet. Obtain uniform and full coverage.
3. Following minimum manufacturer's recommended cure time, remove loose/un-embedded mineral aggregate by blowing with oil-free compressed air or with a vacuum.
4. Apply manufacturer's recommended aggregate coating, over cured and dried aggregate finish to seal surface. After completion of mineral aggregate broadcasting, avoid any traffic for a minimum of two (2) days to allow for surfacing to cure.

B. Coating-Type Finish Surfacing

1. Where specified, provide and install Membrane Manufacturer's approved urethane-based coating applied over clean, fully cured membrane.
2. Apply coating at manufacturer's recommended rate. Avoid any traffic for a minimum of two (2) days to allow for surfacing to cure.

C. Alkalinity Protection

1. Where placement of concrete, mortar or adhesive setting beds are required over sections of the waterproofing membrane or flashing, the application of the following alkalinity protective measure is required:
 - a. Kemper Systems: Application of one (1) heavy or two (2) lighter coats of Primer EP at 1.5 gal (5.7L)/100 SF (9 m²) total application, with broadcast of kiln-dried silica sand at the approximate rate of 30 lbs. per 100 square feet into final wet coat of primer.
 - b. Sikalastic RoofPro Systems: Sikalastic 624/644AR resin shall be used in lieu of 641 Resin wherever stone, concrete, or masonry elements will be placed directly over the membrane.
 - c. Siplast Parapro Roof Resin: Install one layer of Siplast Parapro Roof Resin and one application of approved broadcast mineral aggregate surfacing over the completed membrane wherever stone, concrete, or masonry elements will be placed directly over the membrane.
 2. Protection shall extend a minimum of one (1) foot (0.3m) past the concrete form on all sides.
 3. Provide continuous cleaning with water and brush to eliminate settlement of concrete residues on in-place waterproofing membrane adjacent to area of concrete placement.
- D. Adhesion Key: Where placement of non-cementitious material such as asphalt pavement is required over sections of the waterproofing membrane or flashing, the application of the following adhesion key measure is required:
- a. Kemper Systems: Application of one (1) coat of Primer EP at 1.0 gal (3.8L)/100 SF (9 m²) total application, with broadcast of kiln-dried silica sand at the approximate rate of 30 lbs. per 100 square feet into wet primer.
 - b. Sikalastic RoofPro Systems: Apply 1 coat of Sikalastic resin at 1.0 gal/106 SF and while wet, broadcast kiln-dried silica sand to refusal at the approximate rate of 60 lbs. per 100 square feet into wet coat of Sikalastic resin.
 - c. Siplast Parapro Roof Resin: Install one layer of Siplast Parapro Roof Resin and one application of approved broadcast mineral aggregate surfacing over the completed membrane wherever stone, concrete, or masonry elements will be placed directly over the membrane.

3.7 TEMPORARY CLOSURES AND WATERSTOPS

- A. Contractor shall be responsible to ensure that moisture does not damage any completed section of the new waterproofing system. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition. All temporary closures shall be made as recommended or required by the membrane manufacturer.

3.8 PROTECTION

- A. Upon completion of waterproofing and flashings (including all associated work), institute appropriate procedures for surveillance and protection of roofing during remainder of construction period. Protect all areas where membrane has been installed.

3.9 VERIFICATION OF MEMBRANE INTEGRITY

- A. General: After installing horizontal membrane and before placing overburden, verify installed membrane is waterproof. Provide testing to verify membrane is free of any holes, open seams and capillary defects that will allow water to pass.
1. Utilize electrical conduction method EFVM (Electric Field Vector Mapping) as provided by International Leak Detection, Phone (1) 905-428-8283, as follows:
 2. Installation of EFVM impulse conductor wire around perimeter of area to be tested. The testing agency will determine size and shape of area. Areas will typically range between 2000 SF and 7,500 SF. The conductor wire will consist of braided polyethylene (1.5 mm diameter) interwoven with a minimum of nine (9) strands of stainless steel wire. The conductor wire will have a tensile strength of not less than 180 lbs.
 3. Place conductor wire 4 inches from perimeter and secure against accidental movement or damage. Place so not to create a tripping hazard. Place wire directly on membrane.
 4. Isolate all metal items contacting the membrane by placing isolation strands of conductor wire to isolate the field or by removing the metal items temporarily if possible.
 5. Isolate field of membrane from contact with grounded soil or structure contacting the membrane by placing isolation strands of conductor wire to isolate the field.
 6. Wet the test area with potable water sufficiently to create a continuous conducting “plate” above the membrane.
 7. Attach EFVM impulse generator to conductor wire with removable connectors and to ground or building structure creating a potential circuit. (The circuit will complete if water finds a path to ground by way of a breach in membrane.)
 8. Deliver a one second long 40 volt potential electrical impulse to the conductor wire at an average rate of one impulse every three seconds.
 9. Utilizing a EFVM potentiometer and two probes placed at the surface of the membrane detect the presence or absence of electrical flow across the surface to the membrane.
 10. If there is no flow detected after a systematic search then the certified inspector shall report the installed membrane in that area tested free of holes, seam and capillary defects and is therefore waterproof at that time.
 11. If there is flow detected during the search then the certified inspector shall work to identify the source of electricity and therefore the breach in the membrane. The technician shall report to the waterproofing contractor immediately if possible the exact location of any defects on the installed membrane in that area tested.
 12. Defects found shall be repaired and retested.
 13. The technician providing the EFVM testing shall provide a report of each day’s test results containing a written description and photograph of all defects and any corrections made and a schematic CAD drawing indicating location of stationary conductor wire and of any defects found in testing to within 1 inch of accuracy. This report shall be made in hard copy and submitted to the Architect and Owner.

3.10 FLOOD TESTING

- A. Flood test for all roof areas shall be conducted as per ASTM D5957 - 98 when roofing system installation is completed.

3.11 INSULATION/ INSTALLATION

- A. General: Insulation and cover board shall be installed in accordance with the insulation/cover board manufacturer's current published specifications and recommendations for use with adhered roofing.
- B. Install Insulation: Install only as much insulation and cover board as can be primed, sealed, and protected before the end of the day's work or before the onset of inclement weather.
- C. Fit Insulation: Neatly fit insulation/cover board to all penetrations, projections, and nailers. Insulation shall be loosely butted, with gaps not greater than 1/4". All gaps greater than 1/4" shall be filled with acceptable insulation. Cover board shall be loosely butted, with gaps not greater than 1/4". All gaps greater than 1/8" shall be filled with primer; all gaps greater than 1/4" shall be filled with polyurethane sealant.
- D. Stagger Insulation Joints: When installing multiple layers of insulation, all joints between succeeding layers shall be staggered a minimum of 6" in each direction.
- E. Drain Sumps: Insulation shall be feathered or tapered to provide a sump area a minimum of 36" x 36" where possible at all drains. Taper insulation around roof drains so as to provide proper slope for drainage. In areas where feathered or tapered insulation leaves insulation core exposed, cover with an appropriate cover board or base sheet/cap sheet assembly to provide a sound and smooth substrate surface.

3.12 METAL EDGE FLASHING INSTALLATION

- A. Provide stainless steel retaining angle and perimeter gravel where noted on the drawings. Retaining angle shall be a minimum of 18 gauge Type 316 stainless steel.
- B. Install trim flashing to conceal tray sides/built-up assembly components and to lock into metal counter flashing at building perimeter flashing systems. Install interlocking metal anchor flashing at openings between trays and perimeter roof edges to anchor trays, building perimeter flashings, counter flashings, and walkpad system together.
- C. Fasten metal edge flashing to structure 12" o.c. Use 1/4" lead drive pins into concrete and masonry. Use #12 stainless steel screws into wood and metal.

3.13 CLOSEOUT

- A. Correction of Work: Work that does not conform to specified requirements including tolerances, slopes, and finishes shall be corrected and/or replaced. Any deficiencies of membrane application, termination and/or protection as noted during the membrane manufacturer's inspections shall be corrected and/or replaced at Contractor's expense.
- B. Clean-Up: Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to preconstruction condition.

END OF SECTION

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the sheet metal work, as indicated on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Copper gutters and downspouts with collector boxes and clean-outs.
 - 2. Copper valleys.
 - 3. Copper flashing for roof penetrations.
 - 4. Stainless steel flashing.
 - 5. Copper flashing for flashing at dormers.
 - 6. Field fabricating (including bending, cutting, soldering, etc.), if required, of flashing.
 - 7. Separation of contacting surfaces of dissimilar metals.

1.3 SUBMITTALS

- A. Shop Drawings: Submit, showing all materials, finishes, fastenings, joint details, fabrication, construction and relation to adjoining construction.
- B. Samples: Submit 12" x 12" samples of flashing materials and finishes.

1.4 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation, and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary at no additional cost to the Owner.

1.5 WARRANTY

- A. The Contractor shall warrant that all Metal Flashing Work executed under this Section will be free from defects in materials and workmanship for a period of ten (10) years from date of acceptance of the Project, and he shall remedy any defects in the Metal Flashing Work.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Copper Materials: Sheet copper for all work of this Section shall conform to ASTM B 370, cold rolled temper, 16 oz. weight for all exposed flashing.
 - 1. Fasteners: Nails and fasteners, including rivets, screws, and bolts, shall be of hard copper, brass, or bronze.
 - a. Nails for nailing to wood and concrete shall be flathead, barbed, wire slating nails, not less than No. 12 ga., 1" long.
 - b. Screws and bolts shall have round heads.
 - c. Expansion shields shall be lead sleeves.
 - d. All anchors shall be installed through slotted holes in sheet metal components to minimize deformations of sheet metal components due to temperature variations.
 - 2. Copper Solder: ASTM B 32, Grade Sn50 composition 50% tin and 50% lead.
 - 3. Flux: Rosin, muriatic acid neutralized with zinc or an approved brand of soldering paste.
- B. Stainless Steel Flashing Materials
 - 1. Stainless Steel Flashing: ASTM A 240, Type 304, stainless steel, with 2D finish, dead soft temper, fully annealed, as manufactured by International Nickel Co., Republic Steel Corp., United States Steel, or Washington Steel Corp. Thickness of stainless steel shall be as listed below.
 - a. Concealed Flashings: 0.012" thick, thirty (30) gauge (U.S. Standard).
 - b. Exposed Flashings: 0.015" thick, twenty-eight (28) gauge (U.S. Standard).
 - c. Edge Strips: 0.025" thick, twenty-four (24) gauge (U.S. Standard).
 - 2. Through-wall flashing shall have sawtooth ribs at three (3) inch intervals.
 - 3. Accessories and Fastenings: AISI, Types 302 and 304 stainless steel.
 - 4. Solder: Composed of sixty (60) percent block tin and forty (40) percent pig lead, except that solder at seams exposed to public view shall be eighty (80) percent tin and twenty (20) percent lead.
 - 5. Flux: An acid type flux manufactured specifically for soldering stainless steel, as approved.
- C. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type non-corrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
- D. Roof Membrane System Materials
 - 1. Base, Stripping, and Flashing Reinforcing Ply: Modified bitumen ply sheet conforming to ASTM D 6163, Type I, Grade S, asphalt-impregnated, glass-fiber reinforced, self-adhesive base ply; "Pro Base SA" by Siplast, or equal.

2. Resin for Finish Ply Membrane Construction: Flexible, PMMA-based resin for use in combination with fleece fabric to form a monolithic, reinforced roofing membrane; "Parapro Roof Resin" by Siplast, or equal.
3. Fleece for Membrane Reinforcement: Non-woven, 110 g/m², needle-punched polyester fabric reinforcement as supplied by the membrane system manufacturer; "Pro Fleece" by Siplast, or equal.
4. Liquid Flashing System: A flashing membrane assembly consisting of a liquid applied, flexible, monolithic membrane formed by the combination of PMMA-based resin and fleece fabric; "Siplast Parapro 123 Flashing System."
5. Primer for Self-Adhesive Membranes: Low-VOC, water-based, high-tack primer specifically designed to promote adhesion of roofing and waterproofing sheets to approved substrates; Siplast "TA-119 Primer," or equal.
6. Sealant
 - a. Moisture-curing, self-leveling elastomeric sealant designed for roofing applications; "PS-209 Elastomeric Sealant."
 - b. Moisture-curing, non-slumping elastomeric sealant designed for roofing applications; "PS-715 NS Elastomeric Sealant."
7. Cleaning Solution/Solvent: A clear solvent used to clean and prepare transition areas of in-place catalyzed resin to receive subsequent coats of resin and to clean substrate materials to receive resin; "Pro Prep" or "Pro Prep M" as manufactured by Siplast, Inc., or approved equal.
8. Catalyst: A peroxide-based reactive agent used to induce curing of PMMA-based resins; "Pro Catalyst Powder" by Siplast, or equal.
9. Joint Tape: Thermoplastic, rubber-based sheet having a woven polyester backing, minimum width of 4 inches; "Eternabond Webseal" by Eternabond, Inc.
10. Spray Primer for Copper Substrates: Enamel spray primer for metal substrates to receive PMMA-based flashings; "Rust-Oleum High Performance V2100 System Enamel Spray Primer" by Rust-Oleum, or equal.

E. Copper Preparation Materials

1. Liquid Flashing System: "Parapro 123 Flashing" as manufactured by Siplast, Inc., consisting of a catalyzed PMMA-based membrane fully reinforced with a non-woven polyester fleece that is installed over a prepared or primed substrate.
2. Cleaning Solution/Solvent: A clear solvent used to clean and prepare transition areas of in-place catalyzed resin to receive subsequent coats of resin and to clean substrate materials to receive resin; "Pro Prep" or "Pro Prep M" as manufactured by Siplast, Inc., or approved equal.
3. Spray Primer for Copper Substrates: Enamel spray primer for metal substrates to receive PMMA-based flashings; "Rust-Oleum High Performance V2100 System Enamel Spray Primer" as manufactured by Rust-Oleum, or approved equal.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where sheet metal flashing and trim are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 METAL FLASHING INSTALLATION

- A. Reference Standard: Conform to the requirements of 7th Edition of the Sheet Metal and Air Conditioning Contractors Association (SMACNA) Architectural Sheet Metal Manual and with CDA's "Copper in Architecture Handbook."
- B. General: Fabricate and install metal flashing work in accordance with details and specifications of above Reference Standard, with manufacturer's instructions, and as herein specified, to provide a watertight installation. Apply metal flashing to smooth, even, sound, clean, dry surfaces free from defects. Make provisions to allow for expansion and contraction of metal flashing work. Wherever practicable, shop form all metal flashing work and deliver ready for installation. Form metal flashing work accurately to required profiles, with flat surfaces, straight edges and corners, free from defects. Fold exposed metal edges back not less than 1/2" and form drip.
- C. Nailing: Confine to sheets twelve (12) inches or less in width. Confine nailing to one edge only, locate nails where concealed. Use No. 12 x 1" long flat headed, annular threaded, Type 302 stainless steel nails for nailing to wood blocking; use one (1) inch long masonry nails for nailing to concrete. Space nails four (4) inches o.c. maximum.
- D. Cleating: Use cleats where sheets are more than twelve (12) inches in width. Space cleats approximately twelve (12) inches o.c. Cleats two (2) inches wide by three (3) inches long, of the same material and weight as the metal flashing being installed. Secure one end of the cleat with two (2) nails and fold edge back over the nail heads. Lock other end into seam or into folded edge of metal flashing sheets. Pre-tin cleats for soldered seams.
- E. Joining: Join metal flashings with one (1) inch locked and soldered seams except at slip joints. Mallet seams flat and solder full length of seam as specified below.
- F. Soldering
 - 1. Stainless Steel: Clean and pre-tin edges of stainless steel flashing to be soldered before soldering is begun with solder on both sides for a width of not less than 1-1/2". Solder slowly with well heated metal surfaces. Use ample solder. Show not less than one full inch of evenly flowed solder on seam. Seams shall have a liberal amount of flux brushed in before soldering is commenced. Where soldering paste or killed acid is employed as a flux, soldering shall follow immediately after application of the flux. Upon completion of soldering, clean surfaces of all flux.
 - 2. Copper: Wire brush edges of copper flashing to be soldered before soldering is begun with solder on both sides for a width of not less than 1-1/2". Solder slowly with well heated metal surfaces. Use ample solder. Show not less than one full inch of evenly flowed

solder on seam. Seams shall have a liberal amount of flux brushed in before soldering is commenced. Where soldering paste or killed acid is employed as a flux, soldering shall follow immediately after application of the flux. Upon completion of soldering, clean surfaces of all flux.

- G. Slip Joints: Locate slip joints not more than twenty-four (24) feet apart and not more than eight (8) feet from corners. Form slip joints as three (3) inch wide joints with cover piece behind flashing and fill locked ends neatly with sealant.
- H. Cap Flashing: Install over base flashings, in eight (8) to ten (10) foot lengths, lapped six (6) inches at ends. Cap flashing shall be increased longitudinally to produce spring action to hold bottom edge of cap flashing firmly against base flashing. Cap flashing shall lap base flashing at least four (4) inches, with exposed bottom edge at a forty-five (45) degree angle downward and folded back on underside at least 1/2" to form drip. Make cap flashing continuous at corners and angles.
- I. Miscellaneous Flashing: Provide all other miscellaneous metal flashing not specifically mentioned herein but indicated on drawings and/or required to provide a watertight installation.
- J. Separation of Dissimilar Materials: Back paint surfaces of metal flashing in contact with dissimilar metals or with concrete or masonry with bituminous paint.
- K. Reglets
 - 1. Provide watertight reglets in masonry and concrete work to receive cap flashing. Form reglets of stainless steel using same thickness as stainless steel sheet metal specified.
 - 2. In masonry work use open or closed slot reglets with slot at least one (1) inch deep and 3/16" wide. Provide hook dams or turn-ups for anchoring securely into mortar joints. Insert cap flashing into slot full depth using button punch or lead wedges to lock in place.
 - 3. In concrete work, use open or closed slot reglets with slot sloped upward at forty-five (45) degrees, at least one (1) inch deep and 3/16" wide. For fastening reglets to concrete forms use double-head stainless steel nails spaced twelve (12) inches apart maximum.
 - 4. Insert cap flashing full depth into reglet slot, and wedge in place using lead strips spaced on twelve (12) inch centers maximum or lead caulking rope. When lead strips are used for continuous caulked reglets, use approved weather-resistant fibrous compounds.
- L. Through-Wall Flashings: Provide through-wall flashings as shown. Form bonding features so as not to puddle water on surface. Lap cross joints to interlock design pattern at least three (3) inches. Stop typical flashings in mortar joint 1/2" from exterior face of wall.

3.3 GUTTERS AND DOWNSPOUTS

A. Roof Membrane System

1. Preparation

- a. Primer for Self-Adhesive Flashing Reinforcing Ply: Apply the specified tacky primer by roller or spray in an even film. Refer to the manufacturer's literature for the approved rate of application over various substrate types. Allow the primer to dry

until it leaves a slightly sticky surface without transfer when touched. Cutting or alteration of the primer is not permitted.

- b. Preparation of Copper Substrates: Hand tool (SSPC-SP-2) or power tool (SSPC-SP-3) clean to remove loose rust, mill scale, and deteriorated previous coatings as well as to generate a tooth. Protect surrounding surfaces from overspray. Shake can for one minute after mixing ball is heard. Hold can 10-14 inches from surface. Apply several light coats a few minutes apart to avoid drips and runs. Recoat within 1 hour or after 24 hours; allow more time in cooler temperatures. Monitor ambient and substrate temperatures/conditions to ensure that they are within the paint manufacturer's acceptable range.

2. Application of Roofing Membrane

- a. Apply the modified bitumen ply sheet with side laps running perpendicular to the direction of the slope. Exert sufficient pressure on the roll during application to ensure prevention of air pockets, wrinkles, creases or fishmouths. Refer to the manufacturer's guidelines for maximum sheet lengths and special fastening of the head laps where the roof deck slope exceeds 1/2 inch per foot.
 - b. Unroll the base ply and set the roll into place utilizing minimum 3 inch side and end laps. Fold one end of the roll back onto itself by 24 inches. Peel the release film off of the back of the 24-inch end section of the sheet and lay into place, pressing the 24 inch end section of the sheet firmly into place over the substrate. Pull the release film free from the underside of the remainder of the sheet while pressing the material into place with a follow tool as the film is being removed, leaving the end laps unadhered. Prior to adhering the end laps, cut a dog ear angle at each end lap on overlapping selvage edges. Torch seal or heat weld end laps, ensuring that the self-adhesive blend on the underside of the overlapping sheet and the top surface of the underlying sheet flow into a layer of continuously bonded or fused modified bitumen. Using a clean trowel, apply top pressure to top seal T-laps immediately following sheet application. Stagger end laps a minimum of 3 feet. Laps of the base ply shall not be left exposed overnight. The base ply application shall be immediately followed by the application of the finish ply. A phased application between the base and finish plies is not approved. In cases where rapid onset of inclement weather occurs, seal exposed lap edges with a torch or hot-air welder and trowel.
3. Application of Bituminous Stripping: Apply the specified base flashing materials in accordance with the manufacturer's standard details. Notify the design team immediately of any flashing heights below 8 inches. Flash walls and curbs using the reinforcing sheet. Exert pressure on the flashing reinforcing sheet during application to ensure complete contact with the vertical/horizontal surfaces, preventing air pockets. Check and seal all loose laps and edges. Nail the top edge of the flashing reinforcing on 9 inch centers. Install the specified liquid-applied flashing system in accordance with the membrane system manufacturer's printed installer's guidelines and other applicable written recommendations as provided by the manufacturer. (See the manufacturer's schematic for visual interpretation).
 4. Preparation/Mixing/Catalyzing Resin Products: Pour the desired quantity of resin into a clean container and using a spiral mixer or mixing paddle, stir the liquid for the time period specified by the resin manufacturer. Calculate the amount of catalyst powder or liquid needed using the manufacturer's guidelines and add the pre-measured catalyst to the resin

component. Mix again for the time period specified by the resin manufacturer, ensuring that the product is free from swirls and bubbles. To avoid aeration, do not use a spiral mixer unless the spiral section of the mixer can be fully contained in the liquid during the mixing process. Mix only enough product to ensure that it can be applied before pot life expires.

5. Base Flashing Application

- a. Using masking tape, mask the perimeter of the area to receive the flashing system. Apply resin primer to substrates requiring additional preparation and allow primer to cure.
- b. Pre-cut fleece to ensure a proper fit at transitions and corners prior to membrane application.
- c. Apply an even, generous base coat of flashing resin to prepared surfaces using a roller at the rate specified by the resin manufacturer. Work the fleece into the wet, catalyzed resin using a brush or roller to fully embed the fleece in the resin and remove trapped air. Lap fleece layers a minimum of 2 inch (5 cm) and apply an additional coat of catalyzed resin between layers of overlapping fleece. Again using a roller, apply an even top coat of catalyzed resin immediately following embedment of the fleece at the rate specified by the resin manufacturer, ensuring that the fleece is fully saturated. Ensure that the flashing resin is applied to extend beyond the fleece (maximum 1/4-inch (6 mm). Remove the tape before the catalyzed resin cures. Make allowances for waste, including saturation of roller covers and application equipment.
- d. Should work be interrupted for more than 12 hours or the surface of the cured resin becomes dirty or contaminated by the elements, wipe the surface to be lapped with new flashing resin using the specified cleaner/solvent. Allow the surface to dry for a minimum 20 minutes and a maximum 60 minutes before continuing work.

6. Application of Sealant: Apply a smooth continuous bead of the specified sealant at the exposed finish ply edge transition to metal flashings incorporated into the roof system

B. Surface Preparation of Copper: Prepare the copper gutter substrate as recommended by published Siplast literature and apply "Parapro 123 Flashing System" directly to it (catalyzed resin/reinforcing fleece/catalyzed resin). Substrate preparation is critical to the bond and ultimately the long-term performance.

1. Substrate must be clean and dry and free from gross irregularities, loose material, unsound material, or any foreign material (such as dirt, ice, snow, water, grease, bitumen/coal tar, oil, release agents, lacquers, paint coverings), or any other condition that would be detrimental to the adhesion of the catalyzed primer and/or resin to the substrate.
2. Remove rust or other oxidation layers.
3. Abrade surface to bright finish prior to cleaning with "Pro Prep" or "Pro Prep M."
4. Wipe down thoroughly with "Pro Prep" or "Pro Prep M" prior to coating. Allow "Pro Prep/Pro Prep M" a minimum of 20 minutes drying time after application before continuing. The next application process should be completed within 60 minutes of cleaning with "Pro Prep/Pro Prep M."

5. Qualify/prepare substrate and prime with "Rust-Oleum High Performance V2100 System Enamel Primer" (Rust-Oleum part #2182838 Flat Gray) in accordance with Rust-Oleum specifications.

C. Gutters

1. Support Bracket Installation: Locate low and high points of gutter installation and chalk a guide line to allow a maximum 1/4"/40'-0" slope. Install support brackets at 30" on center aligned with the chalk or other type of guide line. Take care to avoid locating bracket directly over downspout outlet locations. Attach brackets with non-corrosive screw anchors.
2. Gutter Installation: Install gutter sections into support brackets. Insert each telescoping section into previous section for a distance of 1". Provide sealants and fasteners as recommended by manufacturer. Attach rear upper portion of gutter through pre-punched elongated holes at 12" o.c.
3. Inside Strap Installation: Install straps at 30" o.c. alternating with support brackets. Strap shall be hooked into leading edge (bead) of gutter and riveted at its rear side. In no case shall strap be nailed, screwed, or otherwise fastened which would restrain thermal movement of product.
4. Expansion Joints: At 40'-0" intervals, or as shown on plans, install manufacturer's standard elastomeric expansion joint assembly.
5. Miter Corners: Install manufacturer's welded miter units at locations shown on plans. Corners shall have 30" legs, pre-punched, notched, and telescoping to match gutter. All units shall be finished after fabrication; grinding and touch-up painting will not be allowed.
6. End/Caps Terminations: Install manufacturer's end caps at all end terminations. End caps shall be riveted at 2" o.c. and sealed.
7. Outlets: Locate all outlet locations and field cut hole in a neat workmanlike manner. Hole shall be located a distance of 1" from backside of gutter. Insert manufacturer's copper outlet, fasten in place with 4 rivets (one being located on each flange), and seal.
8. Provide stainless steel wire basket strainer.

D. Downspouts

1. Install downspouts with brackets. Attach brackets to structure, use non-corrosive screw anchors.
2. Join sections with manufacturer's standard telescoping joints. Provide fasteners designed to hold downspouts securely 1" away from walls, locate fasteners at top and bottom and at approximately 60" o.c. in between.
3. Connect downspouts to underground drainage system.

END OF SECTION

SECTION 078413 - FIRESTOPS AND SMOKESEALS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the firestops and smoke seals as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Penetrations through fire-resistance-rated floor and roof construction including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
 - 2. Penetrations through fire-resistance-rated walls and partitions including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
 - 3. Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.
 - 4. Sealant joints in fire-resistance-rated construction.
 - 5. Penetrations at each floor level in shafts and/or stairwells.
 - 6. Construction joints, including those between top of fire rated walls and underside of floors above; and those between exterior curtain walls and the outer perimeter edge of floor assemblies.

1.3 RELATED SECTIONS

- A. Cast-in-place concrete - Section 033000.
- B. Joint sealers - Section 079200.
- C. Drywall - Section 092900.
- D. Piping penetrations - Division 22.
- E. Duct penetrations - Division 23.
- F. Cable and conduit penetrations - Division 26.

1.4 REFERENCES

- A. ASTM E 814 "Standard Method of Fire Tests of Through-Penetration Firestops."
- B. UL 1479, UBC 7-5 (Both are same as A. above).

- C. ASTM E 136 "Standard Test Method for Assessing Combustibility of Materials."
- D. UL 263, UBC 7-1 "Fire Tests of Building Construction and Materials"
- E. UL 2079 "Tests For Fire Resistance of Building Joint Systems."
- F. ASTM E 1399 "Test For Dynamic Movement Conditions."
- G. ASTM E 1966 (Same as E. above).
- H. ASTM G 21 "Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi."
- I. Test Requirements: ASTM E 2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-story Test Apparatus."
- J. Inspection Requirements: ASTM E 2174, "Standard Practice for On-site Inspection of Installed Firestops."
- K. Published Through-Penetration Systems by recognized independent testing agencies.
 - 1. UL Fire Resistance Directory, Volume II of current year.
 - 2. Warnock Hersey Certification Listings, current year.
 - 3. Omega Point Laboratories, current year.
- L. International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments.

1.5 SUBMITTALS

- A. Submit manufacturer's product literature for each type of firestop material to be installed. Literature shall indicate product characteristics, typical uses, performance, limitation criteria, test data and indication that products comply with specified requirements.
- B. Submit shop drawings detailing materials, installation methods, and relationships to adjoining construction for each firestop system, and each kind of construction condition penetrated and kind of penetrating item. Include firestop design designation of qualified testing and inspection agency evidencing compliance with requirements for each condition indicated.
 - 1. Submit documentation, including illustrations, for proposed UL listed (or equal) firestop and smoke seal assembly required for the Project.
- C. Material Safety Data Sheets: Submit MSDS for each firestop product.
- D. Submit qualifications of firestop installer, including letter from firestop manufacturer of products proposed to be installed, wherein manufacturer approves or recognizes as trained/ or certifies installer for installation of that manufacturer's products.
- E. Engineering Judgment: For those firestop applications that exist for which no qualified tested system is available through a manufacturer, an engineering judgment derived from similar qualified tested system designs or other tests will be submitted to local authorities having

jurisdiction for their review and approval prior to installation. Engineering judgment documents must follow requirements set forth by the International Firestop Council.

1.6 QUALITY ASSURANCE

- A. General: Provide firestopping systems that are produced and installed to resist the spread of fire and the passage of smoke and other gases.
- B. Installation Responsibility: Assign installation of through-penetration firestop systems and fire-resistive joint systems in Project to a single sole source firestop specialty contractor.
- C. Firestopping materials shall conform to Flame (F) and Temperature (T) ratings as required by local building code and as tested by nationally accepted test agencies per ASTM E 814 or UL 1479. The F-rating must be a minimum of one (1) hour, but not less than the fire resistance rating of the assembly being penetrated. T-rating, when required by code authority, shall be based on measurement of the temperature rise on the penetrating item(s). The fire test shall be conducted with a minimum positive pressure differential of 0.01 inches of water column.
 - 1. Penetrations in Horizontal Assemblies: Provide firestopping with ratings determined in accordance with UL 1479 or ASTM E 814.
 - a. F-Rating: Minimum of 1-hour rating, but not less than the fire-resistance rating of the floor construction being penetrated.
 - b. T-Rating: When penetrant is located outside of a wall cavity, minimum of 1-hour rating, but not less than the fire-resistance rating of the floor construction being penetrated.
 - c. W-Rating: Class 1 rating in accordance with water leakage test per UL 1479.
 - 2. Penetrations in Smoke Barriers: Provide firestopping with ratings determined in accordance with UL 1479 or ASTM E 814.
 - a. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at both ambient and elevated temperatures.
- D. Firestopping products shall be asbestos free and free of any PCBs.
- E. Do not use any product containing solvents or that requires hazardous waste disposal.
- F. Do not use firestop products which after curing, dissolve in water.
- G. Do not use firestop products that contain ceramic fibers.
- H. Firestopping Installer Qualifications: Firestop application shall be performed by a single firestopping contractor who specializes in the installation of firestop systems, whose personnel to be utilized have received specific training and certification or approval from the proposed respective firestop manufacturer, and firestop installer shall have a minimum of three years' experience (under present company name) installing firestop systems of the type herein specified.
- I. Mock-Up: Prepare job site mock-ups of each typical Firestop System proposed for use in the project. Approved mock-ups will be left in place as part of the finished project and will constitute the quality standard for the remaining work.

- J. For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.
 - 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
 - 2. For floor penetrations with annular spaces exceeding 4 inches or more in width and exposed to possible loading and traffic, provide firestop systems capable of supporting the floor loads involved either by installing floor plates or by other means.
 - 3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
- K. Mold Resistance: Provide penetration firestopping with mold and mildew resistance rating of less than or equal to 1 as determined by ASTM G 21.
- L. Firestopping Materials are either "cast-in-place" (integral with concrete placement) or "post-installed." Provide cast-in-place firestop devices prior to concrete placement.
- M. Firestop systems do not reestablish the structural integrity of load bearing partitions or assemblies, or support live loads and traffic. Installer shall consult the Structural Engineer prior to penetrating any load bearing assembly.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's original unopened containers with manufacturer's name, product identification, lot numbers, UL or Warnock Hersey labels, and mixing and installation instructions, as applicable.
- B. Store materials in the original, unopened containers or packages, and under conditions recommended by manufacturer.
- C. All firestop materials shall be installed prior to expiration of shelf life.

1.8 PROJECT CONDITIONS

- A. Verify existing conditions and substrates before starting work
- B. Do not use materials that contain solvents, show sign of damage or are beyond their shelf life.
- C. During installation, provide masking and drop cloths as needed to prevent firestopping products from contaminating any adjacent surfaces.
- D. Conform to ventilation requirements if required by manufacturer's installation instructions or Material Safety Data Sheet.
- E. Weather Conditions: Do not proceed with installation of firestop products when temperatures are in excess or below the manufacturer's recommendations.
- F. Schedule installation of firestop products after completion of penetrating item installation but prior to covering or concealing of openings.
- G. Coordinate this work as required with work of other trades.

1.9 SEQUENCING AND SCHEDULING

- A. Pre-Installation Conference: Convene a pre-installation conference to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.
- B. Sequence: Perform work of this and other sections in proper sequence to prevent damage to the firestop systems and to ensure that their installation will occur prior to enclosing or concealing work.
- C. Install all firestop systems after voids and joints are prepared sufficiently to accept the applicable firestop system.
- D. Do not cover firestop systems until they have been properly inspected and accepted by the authority having jurisdiction.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide products of one of the following manufacturers:
 - 1. Hilti, Inc.
 - 2. Metacaulk.
 - 3. Nelson.
 - 4. Specified Technologies Inc.
 - 5. 3M.
 - 6. Tremco.
 - 7. U.S. Gypsum Co.

2.2 FIRESTOPPING, GENERAL

- A. Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.
- B. Accessories: Provide components for each firestopping system that are needed to install fill materials. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire-resistance-rated systems. Accessories include but are not limited to the following items:
 - 1. Permanent forming/damming/backing materials including the following:
 - a. Semirefractory fiber (mineral wool) insulation.
 - b. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.

- c. Fire-rated form board.
 - d. Joint fillers for joint sealants.
- 2. Temporary forming materials.
 - 3. Substrate primers.
 - 4. Collars.
 - 5. Steel sleeves.
- C. Applications: Provide firestopping systems composed of materials specified in this Section that comply with system performance and other requirements.
 - D. Smoke seals at top of partitions shall be flexible to allow for partition deflection.
 - E. Polypropylene Sleeves (PP): (For cast-in device options.)

2.3 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

- A. Endothermic, Latex Compound Sealant: Single-component, endothermic, latex formulation.
- B. Intumescent, Latex Sealant: Single-component, Intumescent, latex formulation.
- C. Intumescent Putty: Non-hardening, dielectric, water-resistant putty containing no solvents, inorganic fibers, or silicone compounds.
- D. Intumescent Wrap Strips: Single-component, elastomeric sheet with aluminum or polyethylene foil on one side.
- E. Job-Mixed Vinyl Compound: Prepackaged vinyl-based powder product for mixing with water at Project site to produce a paintable compound, passing ASTM E 136, with flame-spread and smoke-developed ratings of zero per ASTM E 84.
- F. Mortar: Prepackaged dry mix composed of a blend of inorganic binders, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a non-shrinking, homogeneous mortar.
- G. Pillows/Bags: Re-usable, heat-expanding pillows/bags composed of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.
- H. Moldable putty pads by 3M or approved equal.
- I. Silicone Foam: Two-component, silicone-based liquid elastomer that, when mixed, expands and cures in place to produce a flexible, non-shrinking foam.
- J. Silicone Sealant: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealant of grade indicated below:
 - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and non-sag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless firestop system limits use to non-sag grade for both opening conditions.

- K. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic or polypropylene sleeve lined with an intumescent strip, an extended rectangular flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- L. Fire Rated Cable Management Devices: Factory-assembled round metallic sleeve device for use with cable penetrations, containing an integrated smoke seal fabric membrane that can be opened and closed for re-penetration.
- M. Drop-In Firestop Devices: Factory-assembled devices for use with combustible or noncombustible penetrants in cored holes within concrete floors. Device shall consist of galvanized steel sleeve lined with an intumescent strip, an extended rectangular flange attached to one end of the sleeve for fastening to concrete floor, and neoprene gasket.
- N. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- O. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized-steel sheet.
- P. Blocks/Plugs: Intumescent flexible block/plug suitable for reuse in re-penetration of openings. Blocks shall allow up to 12" of unreinforced annular space.
- Q. Tub Box Kit: Cast-in place pre-formed plastic tub box kit with three support legs for use with drain piping assembly associated with bathtub installations.

2.4 FIRE-RESISTIVE ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated that complies with ASTM C 920 requirements, including those referenced for Type, Grade, Class, and Uses, and requirements specified in this Section applicable to fire-resistive joint sealants.
 - 1. Sealant Colors: Color of exposed joint sealants as selected by the Architect.
- B. Single-Component, Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, G, A, and (as applicable to joint substrates indicated) O.
 - 1. Additional Movement Capability: Provide sealant with the capability to withstand 33 percent movement in both extension and compression for a total of 66 percent movement.
- C. Multi-Component, Non-Sag, Urethane Sealant: Type M; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, A, and (as applicable to joint substrates indicated) O.
 - 1. Additional Movement Capability: Provide sealant with the capability to withstand 40 percent movement in extension and 25 percent in compression for a total of 65 percent movement in joint width existing at time of installation, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, and remain in compliance with other requirements of ASTM C 920 for uses indicated.
- D. Single-Component, Non-Sag, Urethane Sealant: Type S; Grade NS; Class 25; and Uses NT, M, A, and (as applicable to joint substrates indicated) O.

2.5 MINERAL FIBER/CERAMIC WOOL NON-COMBUSTIBLE INSULATION (FIRE SAFING)

- A. Provide min. 4 pcf safing insulation; Thermafiber Safing Mineral Wool Insulation by Thermafiber, Inc. (an Owens Corning company), Roxul Safe Fire Safing Insulation by Rockwool, Mineral Wool Safing by Johns Manville or approved equal to suit conditions and to comply with fire resistance and firestop manufacturer's requirements.
- B. Material shall be classified non-combustible when tested per ASTM E 136.

2.6 MIXING

- A. For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions with Installer present, for compliance with requirements for opening configuration, penetrating items, substrates, and other conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:
 - 1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.
 - 2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form release agents from concrete.
- B. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing seal of firestopping with substrates.

3.3 CONDITIONS REQUIRING FIRESTOPPING

- A. Building Exterior Perimeters

1. Where exterior facing construction is continuous past a structural floor, and a space (i.e. construction joint) would otherwise remain open between the inner face of the wall construction and the outer perimeter edge of the structural floor, provide firestopping to equal the fire resistance of the floor assembly.
 - a. If mineral wool is part of firestop system, the mineral wool must be completely covered by appropriate thickness of UL or Warnock Hersey listed firestop sealant or spray.
 - b. Refer to Article 3.6 herein for description of fire safing insulation.
2. Firestopping shall be provided whether or not there are any clips, angles, plates, or other members bridging or interconnecting the facing and floor systems, and whether or not such items are continuous.
3. Where an exterior wall passes a perimeter structural member, such as a girder, beam, or spandrel, and the finish on the interior wall face does not continue up to close with the underside of the structural floor above, thus interrupting the fire-resistive integrity of the wall system, and a space would otherwise remain open between the interior face of the wall and the structural member, provide firestopping to continuously fill such open space.

B. Interior Walls and Partitions

1. Construction joints between top of fire rated walls and underside of floors above, shall be firestopped.
2. Firestop system installed shall have been tested by either UL or Omega Point, including exposure to hose stream test and including for use with steel fluted deck floor assemblies.
3. Firestop system used shall allow for deflection of floor above.

C. Penetrations

1. Penetrations include conduit, cable, wire, pipe, duct, or other elements which pass through one or both outer surfaces of a fire rated floor, wall, or partition.
2. Except for floors on grade, where a penetration occurs through a structural floor or roof and a space would otherwise remain open between the surfaces of the penetration and the edge of the adjoining structural floor or roof, provide firestopping to fill such spaces in accordance with ASTM E 814.
3. These requirements for penetrations shall apply whether or not sleeves have been provided, and whether or not penetrations are to be equipped with escutcheons or other trim. If penetrations are sleeved, firestop annular space, if any, between sleeve and wall of opening.

- D. Provide firestopping to fill miscellaneous voids and openings in fire rated construction in a manner essentially the same as specified herein before.

3.4 INSTALLING THROUGH PENETRATION FIRESTOPS

- A. General: Comply with the through penetrations firestop manufacturer's installation instructions and drawings pertaining to products and applications indicated.

- B. Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross-sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for through penetration firestop systems by proven techniques to produce the following results:
 - 1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.
 - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 - 3. For fill materials that will remain exposed after completing work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.5 INSTALLING FIRE RESISTIVE JOINT SEALANTS

- A. General: Comply with ASTM C 1193, and with the sealant manufacturer's installation instructions and drawings pertaining to products and applications indicated.
- B. Install joint fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire resistance rating required.
- C. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross sectional shapes and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.
- D. Tool no sag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.6 INSTALLING FIRESAFING INSULATION

- A. Install fire safing insulation utilizing welded or screw applied galvanized steel impaling pins and retaining clips; space clips or pins 24" o.c. maximum.
- B. Completely fill voids in areas where safing insulation is required. At spandrel conditions/floor edges, depth of insulation top to bottom shall be at least four (4) inches.
- C. Cover top of all safing insulation with firestop sealant or spray.

3.7 FIELD QUALITY CONTROL

- A. Inspecting agency employed and paid by the Owner will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.

- B. Inspecting agency will report observations promptly and in writing to Contractor, Owner and Architect.
- C. Do not proceed to enclose firestopping with other construction until reports of examinations are issued.
- D. Where deficiencies are found, Contractor must repair or replace firestopping so that it complies with requirements.

3.8 CLEANING

- A. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which openings and joints occur.
- B. Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to product firestopping complying with specified requirements.

END OF SECTION

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SECTION 079200 - JOINT SEALERS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the joint sealers work as shown on the drawings and/or specified herein, including but not necessarily limited to the following:
 - 1. Flashing reglets and retainers.
 - 2. Coping joints.
 - 3. Exterior wall joints not specified to be sealed in other Sections of work.
 - 4. Interior wall joints not specified to be sealed in other Sections of work, including caulking to fill between architectural woodwork and any wall, floor and/or ceiling imperfections.
 - 5. Control and expansion joints in walls.
 - 6. Joints at wall penetrations.
 - 7. Joints between items of equipment and other construction.
 - 8. All other joints required to be sealed to provide a positive barrier against penetration of air and moisture.

1.3 RELATED SECTIONS

- A. Unit Masonry - Section 042000.
- B. Firestop sealants -Section 078413.
- C. Sealant within drywall construction - Section 092900.
- D. Sealant at tile work - Section 093013.

1.4 QUALITY ASSURANCE

- A. Qualification of Installers: Use only personnel who are thoroughly familiar, skilled and specially trained in the techniques of sealant work, and who are completely familiar with the published recommendations of the sealant manufacturer.
- B. Pre-Construction Field Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to project joint substrates according to the method in ASTM C 794 and C 1521 that is appropriate for the types of Project joints.

- C. Perform testing per ASTM C 1248 on interior and exterior sealants to determine if sealants or primers will stain adjacent surfaces. No sealant work shall start until results of these tests have been submitted to the Architect and he has given his written approval to proceed with the work.

1.5 SUBMITTALS

- A. Shop Drawings: Submit shop drawings showing all joint conditions, indicating relation of adjacent materials, all sealant materials (sealant, bond breakers, backing, primers, etc.), and method of installation.
 - 1. Submit joint sizing calculations certifying that movement capability of sealant is not being exceeded.
- B. Samples: Submit the following:
 - 1. Color samples of sealants, submit physical samples (not color chart).
 - 2. Sealant bond breaker and joint backing.
- C. Product Data: Submit manufacturer's technical information and installation instructions for:
 - 1. Sealant materials, indicating that material meets standards specified herein.
 - 2. Backing rods.
- D. Submit manufacturer's certification as required by Article 1.6 herein.
- E. Submit results of testing required in Article 1.4 herein.

1.6 MANUFACTURER'S RESPONSIBILITY AND CERTIFICATION

- A. Contractor shall require sealant manufacturer to review the Project joint conditions and details for this Section of the work. Contractor shall submit to the Architect written certification from the sealant manufacturer that joints are of the proper size and design, that the materials supplied are compatible with adjacent materials and backing, that the materials will properly perform to provide permanent watertight, airtight or vaportight seals (as applicable), and that materials supplied meet specified performance requirements.

1.7 ENVIRONMENTAL CONDITIONS

- A. Temperature: Install all work of this Section when air temperature is above forty (40) degrees F. and below eighty (80) degrees F., unless manufacturer submits written instructions permitting sealant use outside of this temperature range.
- B. Moisture: Do not apply work of this Section on surfaces which are wet, damp, or have frost.

1.8 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section, before, during and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

C. Storage

1. Store sealant materials and equipment under conditions recommended by their manufacturer.
2. Do not use materials stored for a period of time exceeding the maximum recommended shelf life of the material.
3. Material shall be stored in unopened containers with manufacturers' name, batch number and date when shelf life expires.

1.9 GUARANTEE

- A. Provide a written, notarized guarantee from the manufacturer stating that the applied sealants shall show no material failure for a period of ten (10) years.
- B. Contractor to provide a written, notarized, guarantee stating that the applied sealants shall show no failure due to improper installation for a period of five (5) years.
- C. Guarantee shall be in a form acceptable to the Owner and executed by an authorized individual.
- D. Include in guarantee provision, agreement to repair and/or replace, at Contractor's expense, sealant defects which develop during guarantee period, because of faulty labor and/or materials.

PART 2 PRODUCTS

2.1 SEALANT MATERIALS

- A. Exterior Wall Sealant: Provide one (1) part non-sag sealant equal to No. 790 or 795 made by Dow Corning, "Silpruf SCS 2000" or "LM SCS 2700" made by G.E. or "Spectrem 1" or "Spectrem 3" made by Tremco, conforming to the minimum standards of ASTM C 920, Type S, Grade NS, Class 50.
 1. Non-Staining Sealant for Stone: Provide one-part, medium-modulus, neutral-curing silicone elastomeric sealant equal to "DOWSIL 756 SMS Building Sealant," or equal.
- B. Interior Sealant: Provide a one (1) part acrylic-based sealant conforming to ASTM C 834, equal to "AC-20+ Silicone" made by Pecora or equal made by Tremco.
- C. Colors: Custom colors of sealants as selected by the Architect.

2.2 MISCELLANEOUS MATERIALS

- A. Back-Up Materials: Provide back-up materials and preformed joint fillers, non-staining, non-absorbent, compatible with sealant and primer, and of a resilient nature, equal to "HBR" made by Nomaco Inc. or approved equal, twenty-five (25) percent wider than joint width. Materials impregnated with oil, bitumen or similar materials shall not be used. Provide back-up materials only as recommended by sealant manufacturer in writing.
- B. Provide bond breakers, where required, of polyethylene tape as recommended by manufacturer of sealant.

- C. Provide primers recommended by the sealant manufacturer for each material to receive sealant. Note that each exterior joint must be primed prior to sealing.
- D. Provide solvent, cleaning agents and other accessory materials as recommended by the sealant manufacturer.
- E. Materials shall be delivered to the job in sealed containers with manufacturer's original labels attached. Materials shall be used per manufacturer's printed instructions.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where joint sealers are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. Sealant Installation Standard: Comply with instructions and recommendations of the manufacturer and in accordance with ASTM C 1193 for use of joint sealants as applicable to materials, applications and conditions required by this Project where more stringent installation requirements are specified herein, such requirements shall apply.
- B. Sample Section of Sealant
 - 1. During sealant installation work in exterior wall, the manufacturer of sealant shall send his representative to the site, under whose supervision a section of the wall (used as "control section") shall be completed for purposes of determining performance characteristics of sealant in joints. Architect shall be informed of time and place of such installation of control section.
 - 2. Control section shall be installed according to specification given herein and shall not be considered as acceptable until written acceptance is provided by the Architect.
 - 3. Accepted control section shall be standard to which all other sealant work must conform.
- C. Supervision: The Contractor shall submit to the Architect written certification from the sealant manufacturer that the applicators have been instructed in the proper application of their materials. The Contractor shall use only skilled and experienced workmen for installation of sealant.
- D. Apply sealant under pressure with a hand or power actuated gun or other appropriate means. Gun shall have nozzle of proper size and provide sufficient pressure to completely fill joints as detailed. Neatly point or tool joint to provide the contour as indicated on the drawings.
- E. Preparation and Application
 - 1. Thoroughly clean all joints, removing all foreign matter such as dust, oil, grease, water, surface dirt and frost. Sealant must be applied to the base surface. Previously applied film must be entirely removed.

2. Stone, masonry and concrete surfaces to receive sealant shall be cleaned where necessary by grinding, water blast cleaning, mechanical abrading, or combination of these methods as required to provide a clean, sound base surface for sealant adhesion.
 - a. Do not use any acid or other material which might stain surfaces.
 - b. Remove laitance by grinding or mechanical abrading.
 - c. Remove loose particles present or resulting from grinding, abrading, or blast cleaning by blowing out joints with compressed air, oil and water free, or vacuuming joints prior to application of primer or sealant.
3. Clean non-porous surfaces such as metal and glass chemically. Remove protective coatings on metallic surfaces by solvent that leaves no residue and is compatible with sealant. Use solvent and wipe dry with clean, dry lint free paper towels. Do not allow solvent to air dry without wiping. Clean joint areas protected with masking tape or strippable films as above after removal of tape film.
4. Do not seal joints until they are in compliance with drawings or meet with the control section standard.
5. Joint Size and Sealant Size: Joints to receive sealant shall be at least 1/4" wide. In joint 1/4" to 3/8" wide, sealant shall be 1/4" deep. In joints wider than 3/8" and up to 1" wide, sealant depth shall be one half the joint width. For joints wider than 1", sealant depth shall be as recommended by the sealant manufacturer. Depth of joint is defined as distance from outside face of joint to closest point of the filler.
6. Primer: Thoroughly clean joints and apply primer to all surfaces that will receive sealant. Apply primer on clean, dry surfaces, and prior to installation of joint backing. Completely wet both inner faces of the joint with primer. Mask adjacent surfaces of joint with non-staining masking tape prior to priming. Apply primer with clean brush and only when temperature is above 45 deg. F.
7. Joint Backing: In joints where depth of joint exceeds required depth of sealant, install joint backing (after primer is dry) in joints to provide backing and proper joint shape for sealant. Proper shape for sealant is a very slight "hourglass" shape, with back and front face having slight concave curvature. Use special blunt T-shaped tool or roller to install joint backing to the proper and uniform depth required for the sealant. Joint backing shall be installed with approximately twenty-five (25) percent compressions. Do not stretch, twist, braid, puncture, or tear joint backing. Butt joint backing at intersections.
8. Bond Breaker: Install bond breaker smoothly over joint backing so that sealant adheres only to the sides of the joint and not backing.
9. Sealant Application: Apply sealant in accordance with the manufacturer's application manual and manufacturer's instructions, using hand guns or pressure equipment, on clean, dry, properly prepared substrates, completely filling joints to eliminate air pockets and voids. Mask adjacent surfaces of joint with non-staining masking tape. Force sealant into joint in front of the tip of the "caulking gun" (not pulled after it) and force sealant against sides to make uniform contact with sides of joint and to prevent entrapped air or pulling of sealant off of sides. Fill sealant space solid with sealant.

10. Tooling: Tool exposed joints to form smooth and uniform beds, with slightly concave surface conforming to joint configuration per Figure 4A in ASTM C 1193. Finished joints shall be straight, uniform, smooth and neatly finished. Remove masking tape immediately after tooling of sealant and before sealant face starts to "skin" over. Neatly remove any excess sealant from adjacent surfaces of joint, leaving the work in a neat, clean condition.
11. Replace sealant which is damaged during construction process.

3.3 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed and cured sealant joints as follows:
 - a. Perform 5 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
 - b. Perform one test for each 5,000 feet of joint length thereafter or one test per each floor per elevation.
2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C1193 or Method A, Tail Procedure, in ASTM C1521.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
3. Inspect tested joints and report on the following:
 - a. Whether sealants filled joint cavities and are free of voids.
 - b. Whether sealant dimensions and configurations comply with specified requirements.
 - c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion complies with sealant manufacturer's field-adhesion hand-pull test criteria.
4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant material, sealant configuration, and sealant dimensions.
5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

END OF SECTION

SECTION 080300 - RESTORATION TREATMENT FOR PERIOD OPENINGS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. John Jay Homestead is a National Historic Landmark, on the National Register of Historic Places and in the New York State Register of Historic Places.
- B. The historical and architectural significance of the site and its buildings require particular care when intervening with existing fabric to ensure restoration work and the construction of new interventions are of appropriate quality and undertaken with appropriate care for the historic fabric.
- C. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents, including but not limited to General and Supplementary Conditions and Division 01 Specifications Sections.

1.1 SECTION INCLUDES

- A. General:
 - 1. The Contractor shall provide all labor, materials, equipment and services required to complete the work as shown on drawings, as described in this section, and as may be required by conditions and authorities.
 - 2. Wood Restoration Contractor to provide all selective removals and dismantling of existing historic wood elements included in this scope of work (e.g. cuts, perforations, trenching, etc.) as needed for installation of new devices, lighting, etc. by others. Provide all needed repairs at historic wood elements after new installations are complete. Subject to review and acceptance by Client, Preservation Architect, and Construction Manager. General Contractor to coordinate the work of all relevant trades.
 - 3. Prior to starting the work - Contractor shall survey all doors and windows shown to remain, in order to verify extent and locations of needed repairs, and confirm estimated quantities shown on the drawings. Results of the Contractor's survey shall be clearly communicated to Client, Architect and Construction Manager and form part of the Restoration Quality Control Plan.
- B. Restoration of existing elements as indicated in the Window Schedule and the Door Schedule on the Drawings.
 - 1. **LEVEL 1** Restoration at Windows shall include the following:
 - a. Restore existing wood sash. Restoration includes:
 - 1) At all glass lites - Replace glazing putty with new to match existing.
 - 2) **(W-R8)** Provide wood fills at small holes/perforations
 - (a) Est. Qty: 275 ¼" diam wood fills total
 - 3) **(W-R5)** Provide patch repair with wood putty at cracks or perforations larger than 1/4".

- (a) Est. Qty: 120 1" diam patch repairs total
 - 4) Replace cracked glass lites with new to match existing.
 - (a) See window schedule for qtys)
 - 5) Cleaning and reinstallation of existing glass to original locations in restored sash.
 - 6) Replace missing or damaged hardware.
 - (a) (see window schedule for qtys) (12 in survey) (**allow for 5 in level 1**)
 - 7) Replace missing or damaged rope cords. (see window schedule for qtys) (14 in survey) (**allow for 5 in level 1**)
 - 8) (**W-R1**) Prep, prime and paint all wood surfaces.
 - b. Restore existing wood frames. Restoration includes:
 - 1) (**W-R5**) Provide patch repair with wood putty at cracks or perforations larger than 1/4".
 - (a) Est. Qty: fifteen (15) 1" diam repairs total
 - 2) (**W-R1**) Prep, prime and paint all wood surfaces.
 - c. Restore existing wood sills. Restoration includes:
 - 1) (**W-R3**) Provide dutchman repairs
 - (a) Est. Qty: five (5) 4"x3"x2" mahogany dutchman repairs total
 - 2) (**W-R4**) Replacement of deteriorated wood sill.
 - (a) Est. Qty: one (1) mahogany replacement total
 - 3) (**W-R5**) Patch repair with wood putty.
 - (a) Est. Qty: twenty (20) 1" diam patch repairs total
2. **LEVEL 2** Restoration at Windows shall include the following:
- a. Restore existing wood sash. Restoration includes:
 - 1) Remove existing paint finish to bare wood PER W-R10.
 - (a) Refer to W-R10 for paint removal only. Do not provide clear coat finish.
 - 2) Replace glazing putty with new to match existing.
 - 3) (**W-R4**) provide replacement of deteriorated wood rails.
 - (a) Est. Qty: ten (10) mahogany rail replacements total
 - 4) (**W-R3**) provide dutchman repairs
 - (a) Est. Qty: eighty (80) 4"x3"x2" mahogany dutchman repairs total
 - 5) Provide wood fills for small holes/perforations
 - (a) Est. Qty: two hundred and fifty (250) 1/4" diam fills total
 - 6) (**W-R5**) provide patch repair with wood putty.
 - (a) Est. Qty: eighty (80) 1" diam patch repairs total
 - 7) Replacement of cracked glass lites.
 - (a) See window schedule for qtys.
 - 8) Cleaning and reinstallation of existing glass in restored sash.
 - 9) (**W-R1**) prep, prime, and paint all wood members.
 - 10) Replace missing or damaged hardware.
 - (a) See window schedule for qtys (12 in survey) (**allow for 15 in level 2**)
 - 11) Replace missing or damaged rope cords.

- (a) See window schedule for qtys. (14 in survey) (**allow for 20 in level 2**)
- b. Restore existing wood frames. Restoration includes:
 - 1) **(W-R5)** Provide patch repair with wood putty.
 - (a) Est. Qty: thirty (30) 1" diam patch repairs total.
 - 2) **(W-R3)** Provide dutchman repairs
 - (a) Est. Qty: ten (10) 4"x3"x2" mahogany dutchman repairs total
 - 3) **(W-R7)** Consolidate deteriorated portions
 - (a) Est. Qty: ten (10) 2LF locations total
 - 4) **(W-R1)** Prep, prime and paint all wood surfaces.
- c. Restore existing wood sills. Restoration Includes:
 - 1) **(W-R3)** Provide dutchman repairs
 - (a) Est. Qty: ten (10) 4"x3"x2" mahogany dutchman repairs total
 - 2) **(W-R4)** Replacement of deteriorated wood sill.
 - (a) Est. Qty: five (5) replacements total
 - 3) **(W-R5)** PROVIDE Patch repair with wood putty.
 - (a) Est. Qty: forty (40) patch repairs total
- 3. For **LEVEL 3** Restoration:
 - a. Replace existing wood door and/or window, including frame, with new to match existing in material, size, profile, configuration, finish, etc.
 - 1) For new doors and windows at exterior walls - provide weatherstripping.
- 4. Restore Storm Windows where indicated. Refer to Elevations and sheet G-104 for Estimated Quantities for repair.
- 5. Where indicated - provide new shutters to match existing. Refer to Elevations.
- C. Treatment of existing hardware.
 - 1. Restoration of existing door hardware. Refer to Door Schedule sheet A-752 for hardware restoration levels.
 - 2. Restoration of existing window hardware. Refer to Window Schedule sheet A-751 for hardware conditions and restoration notes.
 - 3. Replacement of hardware where existing is damaged or missing.

1.2 RELATED REQUIREMENTS

- A. Historical Treatment Procedures – Section **013591**
- B. Removal and Salvage of Historic Construction Materials – Section **020342**
- C. Restoration Treatments for Historic Metals – Section **050300**
- D. Restoration Treatment for Historic Woodwork – Section **060312**

E. Restoration Treatment for Historic Plaster – Section **090120**

F. Painting and Finishing – Section **099000**

1.3 REFERENCE STANDARDS

A. ASTM D638 - Standard Test Method for Tensile Properties of Plastics; 2022.

B. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics; 2023.

C. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials; 2017.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week prior to commencing work of this section.

1. Require attendance of parties directly affecting work of this section.
2. Review installation conditions, procedures, and coordination with related work.

B. Period Treatment Scheduling:

1. For temporary removal of exterior openings, protect openings against weather intrusion and to maintain interior temperature and relative humidity.

1.5 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Shop Drawings: Include plans, elevations, sections, and details for replacement elements.

1. Indicate proposed repair methods.
2. Indicate component profiles and joinery.
3. Include installation templates for replacement hardware items.

C. Product Data:

1. Lumber Products: Species, cut, dimensions, physical and functional characteristics.
2. Metal Products: Alloy and finish, dimensions, physical and functional characteristics.
3. Cleaning Compounds and Solutions: Physical characteristics and manufacturer's recommendations.

D. Replacement Component Samples: Two samples of each type of component.

E. Vision Glass Samples: Four samples of each type of replacement glass to show matching color, texture, and full color range.

F. Manufacturer's Instructions: For cleaning materials, indicate special procedures, conditions requiring special attention, and compatibility with intended material.

G. Conservation treatment quality control plan.

H. Restorer's qualification statement.

1.6 QUALITY ASSURANCE

- A. Historic Treatment Specialist Qualifications: : A firm or company specializing in historic woodwork restoration with minimum ten (10) years of documented experience. Qualified companies must present examples of completed work on at least five (5) projects similar in material, design, and extent to that indicated for this Project, whose work has resulted in historic treatment of historic doors and windows with a record of successful in-service performance. A firm or individual experienced in installing and finishing new decorative windows and doors is insufficient experience for historic door and window restoration work.
1. The Contractor shall hold and provide evidence of current RRP certification of Trained & Certified EPA Lead Renovator and previous experience in removal of lead-based paint from exterior and interior wood surfaces.
- B. Field Supervision:
1. The Contractor shall maintain a full-time foreman/supervisor who shall be present on site or in the shop daily at all times that historic treatment of historic woodwork is in progress.
 2. The Contractor shall maintain a steady work crew consisting of skilled craftsmen who are experienced with the materials and methods specified and familiar with the design requirements.
 - a. Woodwork refinishing and repairs shall be executed by skilled persons thoroughly trained and familiar with the methods required.
 - b. The Contractor shall confirm that all workers under their direction fully understand the requirements of the job.
 - c. Contractor shall notify Architect before beginning work. Obtain the Architect's approval of the installation of restored masonry before proceeding with the work.
- B. Source of Materials: Obtain materials for wood restoration from a single source for each type of material required to ensure a match in quality, color and texture.
- C. Bidders must visit the site beforehand and make themselves thoroughly familiar with specific conditions relating to this Section.
- D. Materials shall conform to the latest edition of reference specifications applicable and specified herein and to applicable codes and requirements of local authorities having jurisdiction.
3. Materials shall conform to governing regulations regarding the content of volatile organic compounds (VOC).
 4. Finishing materials and work shall conform to the Painting and Decorating Contractors of America (PDCA)
 5. The Contractor shall comply with relevant ASTM Standards for all materials.
 6. All work shall comply with the United States Secretary of the Interior Standards for Rehabilitation and guidelines for Rehabilitating Historic Buildings, unless otherwise stated.
- E. Field Supervised Construction: The Contractor shall notify Architect before beginning any restoration.

- F. Pre-Installation Conference: Convene a pre-installation conference for specialty restoration scopes of work to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.
- G. The Contractor shall replace all broken, lost and damaged materials resulting from repair, removal, transportation, cleaning or storing at no expense to the Owner and to the satisfaction of the Architect.
- H. Restoration Treatment Quality Control Plan: Prior to commencing work of this section, receive written approval of plan of proposed restoration and cleaning work. Include the following:
 - 1. Description of methods of dust containment.
 - 2. Description of methods of protecting surrounding construction and landscape features.
 - 3. Description of sequencing, work procedures, materials, and tools proposed for each type of conservation treatment specified.
 - a. Effects of weather variations on sequencing of treatments, construction schedule, and protection of completed work.
 - b. Flowcharts illustrating decision process used to determine the following:
 - 1). Restoration in situ versus shop repair of elements.
 - 2). Repair versus replacement of elements.
 - 4. Description of methods for deconstruction of individual door and window units and tools and methods for cleaning and refinishing for reuse.
 - 5. Description of methods and approach for matching materials and compatibility with original materials.
 - 6. Description of methods and approach to periodic and final cleaning of door and window surfaces.

1.7 MOCK-UPS

- A. See Section 014000 - Quality Requirements for additional requirements.
- B. Locate mock-up areas where directed.
- C. Approved restoration mock-up areas, including results of procedures employed, will remain and become the quality standard for work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver, and store wood items to protect from damage and dimensional changes from improper temperature and relative humidity exposure.
 - 1. For climate-controlled applications, deliver to area when wet work is dry, overhead work is complete, and area is broom clean.
- B. Avoid humidity build-up under coverings. Prevent corrosion of metals and damage to factory-applied painted finishes.
- C. Protect factory finished surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to substrate when exposed to sunlight or weather.

1.9 FIELD CONDITIONS

- A. Maintain materials and surrounding air temperature to minimum 45 degrees F (7 degrees C) prior to, during, and 48 hours after completion of metal period treatment work.
 - 1. Refer to each Manufacturer's specific recommendations for minimum surface temperature and air temperature requirements.
 - 2. Maintain adequate, consistent temperatures during curing following all Manufacturers' recommendations.
- B. Maintain materials and surrounding air temperature to maximum 90 degrees F (32 degrees C) prior to, during, and 48 hours after completion of metal period treatment work.
- C. Do not proceed with installation of wood elements until after materials have been acclimatized for a minimum of 72 hours.

PART 2 - PRODUCTS

2.1 METAL MATERIALS

- A. See Section 050300 - Restoration Treatment for Historic Metals for generally applicable metal restoration procedures, materials, and products.
- B. Fabrication Methods: Match existing work.

2.2 WOOD MATERIALS

- A. See Section 060300 - Restoration Treatment for Historic Woodwork for wood restoration procedures, materials, and products.
- B. Machining: Profile new moldings and shapes to match period items, based on samples provided by Architect.
- C. Backing: Plywood for backing built-up work when approved by Architect.
- D. Carpentry Methods: Match those exhibited in existing work.

2.3 REFINISHING MATERIALS

- A. Lacquers: Protective coatings for metal alloys.
- B. Paint: High-performance top coat and primer with corrosion inhibitors designed for alloy being refinished.

2.4 GLASS MATERIALS

- A. Glass: Match opacity, color, thickness, texture, pattern and other aesthetic characteristics of existing glass.

- B. Braces and Other Accessories: Provide new to match existing.
- C. Glazing Compound for Leaded Glass: Standard putty manufactured for leaded glass work.
- D. Glazing Compound for Glazed Window and Door Panes:
 - 1. Glazing Putty: Linseed-oil-based, knife grade consistency; gray color.
 - 2. Glazing Putty: Polymer modified latex recommended by manufacturer for outdoor use, knife grade consistency; gray color.

2.5 OPERATING HARDWARE

- A. Replacement Hardware: For damaged or missing hardware; match existing to greatest extent technically and aesthetically possible. Duplicate operating functions of existing hardware. Match approved samples.

2.6 REPLACEMENT DOORWAYS

- A. Custom-fabricate replacement doors to match key features of existing units.
 - 1. Fabricate using same or similar materials.
 - 2. Replicate configuration of stiles, rails, and infill panels.
 - 3. Replicate glass and glazing materials.
 - 4. Replicate proportions and profiles of the frame components, door leaf components, exterior trim, and interior trim.
 - 5. Provide weatherstripping that does not significantly change the original appearance of the units.

2.7 REPLACEMENT WINDOWS

- A. Custom-fabricate replacement windows to accurately replicate key features of existing units.
 - 1. Fabricate using same or similar materials.
 - 2. Replicate configuration of glass panes.
 - 3. Replicate glass and glazing materials.
 - 4. Replicate proportions and profiles of the frame components, sash components, exterior trim, and interior trim.
 - 5. Provide weatherstripping of type that does not significantly change the original appearance of the units.

2.8 STORM WINDOWS

- A. Custom-fabricate replica units compatible with period windows, for installation on outside of main window.
 - 1. Provide operating and latching hardware.
 - 2. Provide sash profiles and dimensions that minimize obscuring sash members of the main window.
 - 3. Provide same or similar materials to match existing storm windows in sound condition.

2.9 BONDING ADHESIVES

- A. General: For wood repairing and bonding.
- B. Epoxy Adhesive: Two-component, exterior grade, clear, tintable adhesive with gel viscosity.
 - 1. Cured Properties:

- a. Tensile Strength: 2,044 psi (14.04 MPa) at 7 days when tested in accordance with ASTM D638.
- b. Compressive Strength: 8,182 psi (56.41 MPa) at 7 days when tested in accordance with ASTM D695.
- c. Flexural Strength: 9,896 psi (68.23 MPa) at 7 days when tested in accordance with ASTM D790.

2.10 TEMPORARY EXTERIOR OPENING PROTECTION MATERIALS

- A. Contractor shall provide temporary protection of exterior openings as required for execution of this work.
 - 1. Select materials whose attachment does not result in unrepairable damage to historic materials.

2.11 PAINT REMOVERS –

- A. See Section 060300 - Restoration Treatment for Historic Woodwork for paint stripping procedures, materials, and products.

2.12 PAINT MATERIALS

- A. See Section 099000.

PART 3 - EXECUTION

3.1 HISTORIC TREATMENT, GENERAL

- A. See Section 013591 for special procedure requirements related to elements and features of historical significance and value.

3.2 EXAMINATION

- A. Verify that surfaces to be cleaned and restored are ready for work of this section.

3.3 PREPARATION - LEVEL 1 REPAIR

- A. Protect surrounding elements from damage due to restoration procedures.
- B. Remove or dismantle and store removable items located in areas to be restored including, but not limited to, fixtures, fittings, finish hardware, and accessories; reinstall upon completion of restoration work.
- C. Separate areas to be protected from restoration areas to prevent damage.
- D. Mask or cover adjacent surfaces and permanent equipment. Secure coverings without tapes that leave residue, or nails. Do not use impervious sheeting which produces condensation.
 - 1. Use materials that will withstand cleaning and restoration procedures.

- E. Cover existing landscaping within work areas with tarpaulins or similar covers during work periods.
 - 1. Select covering types that allow plants to breathe.
 - 2. Remove coverings at the end of each workday. Do not cover plants with waterproof membranes for more than eight hours at a time.
 - 3. Set scaffolding and ladder legs away from plants. Request and receive approval from Owner for plant pruning necessary to conduct conservation treatment operations.
- F. Separate adjacent occupied areas with dust proof and weatherproof partitions.
- G. Protect openings from weather and secure openings where components are temporarily removed. Use materials, means, and methods that will not damage existing construction.
- H. When using liquid cleaning methods, install drainage devices to prevent runoff over adjacent surfaces, unless those surfaces are impervious to damage from runoff.
- I. Do not allow cleaning runoff to drain into sanitary or storm sewers.
- J. Do not attach scaffolding, ladders, or working platforms to the building without written authorization and instructions from Architect.

3.4 RESTORATION - LEVEL 1 REPAIR

- A. Restore damaged and nonoperating elements or components that are indicated to receive Level 1 repairs in the Drawings and the Conservation Treatment Quality Control Plan.
- B. See Section 060300 for treatments involving consolidation, patching, and dutchman installation of wood components.

3.5 RESTORATION - LEVEL 2 REPAIR

- A. Restore damaged or nonoperating elements or components, in on-site or off-site shop, that have been identified for reinstallation by the Conservation Treatment Quality Control Plan.
- B. Record locations of items, prior to removal, at the site by any combination of digital photography, videography, or marking them in inconspicuous location.
 - 1. Assign each element (door, window, etc.) its own unique identifying number.
 - 2. Provide key plan that indicates original location of each dismantled element and its unique identifying number.
- C. Repair elements in a shop properly staffed and equipped to perform necessary restoration procedures.

3.6 WOOD DOOR OPENING REPAIR

- A. Provide repairs including, but not limited to, the following:
 - 1. Wood Damage: Wood which is split, checked, or shows signs of rot:
 - a. See Section 060300 for treatments involving consolidation, patching, and dutchman installation of wood components.

2. Gaps and Loose Joints: Tighten moving joints in stile and rail doors. Inject adhesives into holes drilled into joints.
3. Replace deteriorated parts with new, matching pieces.
4. Splice new wood onto existing members.

3.7 WOOD WINDOW OPENING REPAIR

A. Provide repairs indicated.

B. Level 1 Repairs:

1. Remove loose exterior and interior paint.
 - a. See Section 060300 for wood treatments.
2. Repair sashes.
 - a. Gaps and Loose Joints: Tighten moving joints in sashes. Inject adhesives into holes drilled into joints.
3. Repair window frame.
 - a. Fill cracks and holes with patching putty.
 - b. Provide dutchman repairs at areas with larger voids or cracks.
4. Reglaze sashes by replicating methods and final appearance used in similar existing windows.
5. Replace missing or damaged hardware.
6. Replace missing or damaged rope cords for existing counterweight pulley system.
7. Repaint all wood elements.

C. Level 2: Repairs:

1. Strip all interior and exterior paint to bare wood.
2. Wood Damage: Repair as indicated for wood which is split, checked, or shows signs of rot.
 - a. See Section 060300 for treatments involving consolidation, patching, and dutchman installation of wood components.
 - b. Dry affected wood components.
 - c. Treat decayed areas with a fungicide.
 - d. Waterproof with three applications of boiled linseed oil.
 - e. Fill cracks and holes with patching putty.

D. Level 3 Repairs: Perform Class I and Class II repairs and the following:

1. Replace deteriorated parts with new matching pieces.
2. Splice new wood onto existing members.

3.8 HARDWARE CLEANING

A. See Section 050300 - Restoration Treatment for Historic Metals for restoration procedures, materials, and products.

3.9 HARDWARE INSTALLATION

A. Install replacement hardware where indicated in doors, windows, and storm windows that complements functionality of existing hardware.

- B. Install hardware in accordance with manufacturer's instructions and applicable codes.
- C. Use templates provided by hardware item manufacturer.
- D. Do not install surface-mounted items until substrate finishes are complete.

3.10 REGLAZING

- A. Remove existing, deteriorated glazing putty.
- B. Remove deteriorated sash spring clips.
- C. Remove paint and pretreat and prime metal surfaces.
- D. Bed replacement glass in putty. Secure with sash spring clips.
- E. Press and smooth glazing putty against glass and sash.
- F. Cure putty in accordance with manufacturer's instructions.

3.11 WEATHERIZATION

- A. At new, replacement windows and doors only - apply weatherstripping indicated along edge of sash in accordance with manufacturer's instructions.

3.12 LEADED GLASS OPENING REPAIR

- A. Lead Cames and Structures:
 - 1. Replacement of Lead Cames: Install new lead cames to replace damaged or deteriorated cames as follows:
 - a. Pry up edges of came around pieces of glass seated in came to be replaced. Do not scratch or damage glass.
 - b. Remove pieces glass.
 - c. Cut out section of came to be replaced at joints.
 - d. Install new strip of came and solder joints.
- B. Support Structure Repair: Replace deteriorated support members or supplement existing members as follows:
 - 1. Prior to repairing support structures, provide braces and temporary support to protect leaded glass work from deflection or other damage.
 - 2. Remove deteriorated support members.
 - 3. File or scrape solder deposits from surfaces of lead came.
 - 4. Repair leaded glass to remove bowing or warping.
 - 5. Install new support members and solder and fasten to leaded glass.

3.13 CLEANING

- A. Immediately remove stains resulting from the work of this section.

- B. Clean surrounding surfaces.
- C. Glazing: At completion of project, remove protective coverings and reclean soiled surfaces using indicated procedures and materials.

END OF SECTION

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SECTION 081416 - WOOD DOORS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the wood doors as shown on the drawings and/or specified herein, including but not limited to, the following:
 - 1. Solid core flush wood doors.
 - 2. Fire rated flush wood doors.

1.3 RELATED SECTIONS

- A. Installation of wood doors - Section 062000.
- B. Finish hardware - Section 087100.
- C. Glass and glazing – Section 088000.
- D. Field painting – Section 099000.
- E. Restoration Treatment for Period Openings – Section 080300. (*For existing wood doors to remain.*)

1.4 SUBMITTALS

- A. Product Data: Submit door manufacturer's product data, specifications and installation instructions for each type of wood door.
 - 1. Include details of core and edge construction and trim for openings.
 - 2. Include factory finish specifications.
 - 3. Include certifications to show compliance with specifications.
 - 4. Include certification to show compliance with AWI and WDMA requirements specified herein.
- B. Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for finishing and other pertinent data.
 - 1. Include requirements for veneer matching.
- C. Submit the following

1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.
- B. Quality Standard: Comply with AWI's "Architectural Woodwork Quality Standards Illustrated"; latest edition "Premium" grade and WDMA "Extra Heavy Duty" Performance Level.
 1. Only manufacturers that are certified and listed by AWI to be QCP qualified are acceptable for this project.
 2. Provide letter of licensing for Project indicating that doors comply with requirements of grade specified.
- C. Fire Rated Wood Doors: Doors complying with Category A, Positive Pressure or Neutral Pressure testing standards per UBC 7-2-1997 and UL 10-C (UBC 7-2-1994 and UL 10B) that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated on Door Schedule, based on testing according to NFPA 252.
 1. Conform to prevailing Code requirements to determine which pressure standard (Positive or Neutral) is required.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until building is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) in excess of permitted standard noted in Article 2.5 herein, or show telegraphing of core construction in face veneers.
 1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 2. Warranty shall be in effect during the following period of time from date of Substantial Completion:
 - a. Solid Core Flush Wood Doors: Life of installation.

PART 2 PRODUCTS

2.1 SOLID CORE FLUSH WOOD DOORS

- A. Provide AWI PC-5 Premium Grade hot pressed 5-ply solid core particleboard doors, 1-3/4" thick, conforming to standards specified herein. Subject to meeting standards specified herein, the following manufacturers are acceptable: Masonite, VT Industries, Mohawk or approved equal.
 - 1. Core shall consist of a formed flat panel consisting of wood particles bonded together with synthetic resins or other added binder, with an average density of 30 to 32 lbs. per cubic foot. The material shall meet or exceed the requirements of ANSI A208.1, Grade 1-LD-2 covering mat formed particleboard with face screw holding of 124 lbs., modulus of rupture of minimum 700 psi and modulus of elasticity of not less than 148,000 psi.
 - 2. Core shall be capable of satisfying this WDMA TM-7 cycle slam test for 1 million slams for surface mounted hardware. Where the manufacturer's core does not meet this criteria, stiles and rails must measure a minimum of 5-1/2" and must be fabricated of hardwood.
 - a. Surface mounted hardware must be installed with minimum 1-1/4" screw penetrations using threaded to the head screws; coordinate with Section 087100.
- B. Cross Bands: Shall be 1/16" thick hardwood extending full width of door and laid with grain at right angles to face veneers. Cross bands and faces shall be laminated to the core with Type I MF or PVA glue.
- C. Stiles, Rails: Stile and rail shall be a minimum of 1-3/8" solid hardwood or structural composite lumber (after trimming) laminated to the core. Stiles and rails must be securely glued to the core with no voids allowed. Stiles and rails must be capable of screw holding of 550 lbs. per WDMA TM-10.
- D. Vertical door edge must be capable of screw holding of 550 lbs. per WDMA TM-10; horizontal door edge must be capable of screw holding of 400 lbs. per WDMA TM-10.
- E. Doors with transparent finish to have center balanced, slip matched, rift sliced, Select veneer per finish schedule. Veneer to conform to AWI, "AA" grade veneer with 3" wide leaf. Minimum veneer thickness shall be not less than 1/50" after sanding.
 - 1. Veneers shall be continuous or end matched at transoms.
- F. Doors shall have hinge loading capacity of 500 lbs. per WDMA TM-8.
- G. Where glass lites are noted, factory cut openings. Trim openings with solid hardwood moldings of same type of wood as face veneer. Lite openings in 20 minute rated doors shall have manufacturer's 20 minute approved hardwood system.
- H. Doors to be field painted shall have MDO or hardboard face.

2.2 FIRE RATED WOOD DOORS ("B" LABEL)

- A. Provide mineral core 1-3/4" thick solid core wood doors conforming to standards specified herein, manufactured by one of the manufacturers noted above. Stile construction on both stiles shall conform to the following:

1. Stile edge screw withdrawals when tested in accordance with ASTM D 1037-78 shall exceed 650 lbs. This applies to both stiles.
 2. Stile edge split resistance when tested in accordance with ASTM D 143-52 (78) Modified must exceed 950 lbs. This applies to both stiles.
- B. Door to have face finish as specified above in Article 2.1.
1. Where the core is free of urea formaldehyde, provide a layer of veneer over the substrate prior to application of finish veneer to prevent telegraphing of patterns from the adhesive.
- C. Blocking: For surface mounted hardware only, provide composite blocking designed to maintain fire resistance of door but with improved screw-holding capability of same thickness as core and with minimum dimensions as follows:
1. 5-inch top rail blocking.
 2. 5-inch bottom rail blocking.
 3. 1 – 5" x 18" lock block at cylinder or mortise locksets.
 4. 2 – 5" x 18" lock blocks at exit devices.
- D. Pairs: Provide fire-rated pairs with fire-retardant stiles that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals.

2.3 SHOP FINISH

- A. Transparent Finish: Finish in the shop with clear satin catalyzed polyurethane finish conforming to AWI System "Catalyzed Polyurethane Transparent".
- B. Opaque Finish: For doors to be field painted, shop prime on all surfaces with one coat of alkyd wood primer applied to a dry film thickness of 1.5 mils.

2.4 FABRICATION

- A. Prefit and premachine wood doors at the factory.
- B. Comply with the tolerance requirements specified herein. Machine doors for hardware requiring cutting of doors. Comply with final hardware scheduled and door frame shop drawings, and with hardware templates and other essential information required to ensure proper fit of doors and hardware.
- C. Take accurate field measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with machining in the factory.
- D. Doors shall be factory sized to door opening so that trimming and fitting are not required in the field.
- E. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances unless otherwise indicated.
 1. Three degree bevel or bevel to suit frame sizes indicated, with 3/16" prefit in width, +0/-1/32" tolerances. Prefit top of door 1/8" + 1/16"/-0" and undercut as required by floor condition. Undercut shall not exceed 1/8" from bottom of door to top of finished floor;

where threshold occurs undercut shall not exceed 1/8" from bottom of door to top of threshold.

2. Comply with requirements in NFPA 80 for fire-rated doors.

F. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3 unless otherwise noted. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.

1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.

2. Provide concealed intumescent seals at fire-rated pairs of doors meeting the requirements of U.L. 10 C.

G. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kinds of doors required.

2.5 SOURCE QUALITY CONTROL

A. Once installed, maximum allowable warp, bow, cut or twist in doors shall be 1/16" as measured by the 1/16 inch feeler gauge and a straight-edge extending from corner to corner of the door face at stiles, top and bottom rails and along both diagonals.

PART 3 EXECUTION

3.1 INSTALLATION

A. Refer to Section 062000 for installation of wood doors.

END OF SECTION

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SECTION 081433 STILE-AND-RAIL WOOD DOORS AND FRAMES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the wood doors as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Custom stile-and-rail exterior wood doors and frames, including screen doors, complete with true divided lites, fixed transoms and fixed sidelights (where indicated), frame systems, glazed panels, and operable hardware and weatherstripping, for locations shown on the drawings.
 - 2. Custom rated Interior stile-and-rail wood doors, frames, and saddles, stave lumber core to match Historic openings.
 - 3. Custom Stile and Rail wood door with flush panel on one side.

1.2 RELATED SECTIONS

- A. Carpentry - Section 062000, for installation of wood doors.
- B. Finish Hardware - Section 087100.
- C. Painting and Finishing - Section 099000, for field painting of wood doors.

1.3 QUALITY ASSURANCE

- A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.
- B. Quality Standard: Comply with AWI's "Architectural Woodwork Quality Standards Illustrated"; latest edition "Premium" grade and WDMA "Extra Heavy Duty" Performance Level.
 - 1. Only manufacturers that are certified and listed by AWI to be QCP qualified are acceptable for this project.
 - 2. Provide letter of licensing for Project indicating that doors comply with requirements of grade specified.
- C. Fire Rated Wood Doors: Doors complying with Category A, Positive Pressure or Neutral Pressure testing standards per UBC 7-2-1997 and UL 10-C (UBC 7-2-1994 and UL 10B) that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated on Door Schedule, based on testing according to NFPA 252.
 - 1. Conform to prevailing Code requirements to determine which pressure standard (Positive or Neutral) is required.

1.4 SUBMITTALS

- A. Product Data: Submit door manufacturer's product data, specifications and installation instructions for each type of wood door.
 - 1. Include details of core and edge construction, casings, and trim for openings.
 - 2. Include finish specifications.
 - 3. Include certifications to show compliance with specifications.
 - 4. Include certification to show compliance with AWI and WDMA requirements specified herein.
 - 5. Include certifications to show compliance with fire-ratings requirements and testing.
- B. Shop Drawings: Submit shop drawings indicating location and size of each door, quantities keyed to scale elevations, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for finishing and other pertinent data.
- C. For each wood species and finish, provide set of three samples showing typical range of color and grain to be expected in the finished work. Submit samples of factory finishes applied to actual door face materials, approximately 8 by 10 inches for each material and finish. Submit 12"-long samples of all casings and trims for each type of door frame.
- D. Door Schedule: Submit schedule of doors, saddles, and frames using same reference numbers for details and openings as those on Drawings.
- E. Mock-Ups: For wood doors and frames, submit full-size mock-ups as directed by the Architect, to include finishes applied to door face materials to match wood finish specified.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until building is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Humidity Controls: The ambient relative humidity at the site, including both the storage and the installation areas, shall be maintained between 25% and 55% prior to delivery and through the life of the installation.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) in excess of permitted standard noted in Article 2.2 herein, or show telegraphing of core construction in face veneers.

1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
2. Warranty shall be in effect for the life of the installation starting from date of Substantial Completion.

PART 2 PRODUCTS

2.1 STILE-AND-RAIL WOOD DOORS

- A. Provide custom stile-and-rail wood doors conforming to AWI "Premium" grade standards as manufactured by Duratherm, Reilly Architectural, or comparable product by Artistic Windows & Doors or an approved equal acceptable to the Architect.
 1. Exterior Stile and Rail Wood Doors: Provide custom in-swinging paneled doors, Sapele mahogany of thickness indicated on the drawings. Exterior doors and their assembly shall meet the standards for Grade 60 of the National Wood Window and Door Association (ANSI/NWDAI.5.2-86).
 - a. Description: Doors shall be solid wood stile-and-rail panel doors, as shown in Architectural drawings. Allow for glass vision lite as scheduled. Provide metal flashings at door tops and at bottoms of glazed openings.
 - b. Construction: Stiles and rails shall be glued block construction with 1/8" minimum veneers. Joinery shall be blind mortise and tenon construction, sized for a drive fit, with tenon set in adhesive and pinned. Glazed doors to incorporate interior removable glass stops for reglazing. Glazing channels to be weeped to exterior. Sections of stiles, rails and muntins to match details on drawings.
 - c. Quality Grade: Premium.
 - d. Solid Wood: Selected by Architect
 - e. Finish: As directed by Architect Finish as required for exterior use.
 - f. Provide out-swinging screen doors where indicated.
 - g. Provide reclaimed wood where indicated.
 2. Interior non-rated Stile and Rail Wood Doors: Premium Grade, opaque lacquer finish as per schedule; custom panel of design indicated on drawings. Provide doors of thickness indicated; stile and rail construction to meet rating requirements; veneered mineral core stiles and panels; at hinge stiles, provide edge construction with split resistance and screw reinforcing capacity (550 lbf per WDMA). Prep for scheduled hardware. **Pay special attention for the custom door with one-side having a flush panel. Refer to the drawings.**
 - a. Description: Provide 1-3/4" thick painted rift-sawn frames and casings unless otherwise noted.
 - b. Quality Grade: Premium.
 - c. Solid Wood and Face Veneer: Per Drawings.
 - d. Panel Thickness: No less than 1-1/8" with a 1-3/4" thick door.
 - e. Panel face slip matched veneers. Panel edge concealed by solid sticking bead or applied molding.
 - f. Panel Design: As indicated in Architectural drawings.
 - g. Panel Core: Staved lumber core per fabricator's standard.
 - h. Veneer Species: Per Drawings.

3. Interior Rated Doors (45- and 60-minute rated): Premium Grade, opaque finish as per schedule; custom panel of design indicated on drawings. Match existing profiles and sticking where indicated. Provide 1-3/4" thickness; stile and rail construction to meet rating requirements; veneered mineral core stiles and panels; at hinge stiles, provide edge construction with split resistance and screw reinforcing capacity (550 lbf per WDMA). Prep for scheduled hardware. Refer to door schedule for integral door bottom requirements at STC rated doors and other locations.
4. Fire-Rated Frames: Premium Grade; core shall be laminated composite wood and intumescent with wood veneered exposed surfaces. Veneer shall match door and/or existing custom stain and species.

B. Construction shall conform to the following:

1. Lumber: All pieces shall be dried to an average moisture content of 12% (9 to 14% for individual pieces) before assembly and treatment.
2. Compatibility of grain and color between veneer and lumber.
3. Type 1 Glue (PVA-waterproof).
4. Joints: Doweled and glued under pressure.
5. Stiles, rails, moldings and mullions shall be solid wood construction for non rated doors. Stiles, rails, moldings and mullions for rated doors shall be using edge glued core material of rated fire core with face veneer of 1/8" minimum thickness before sanding. Exposed edges shall be same species as face.
6. Solid Panels: Mitered rim, tongue and grooved into edge of flush panel. Miters shall be reinforced with splines. Panel face slip matched veneers. Panel edge concealed by solid sticking bead or applied molding.
 - a. Panel Design: Raised panels, as detailed on drawings. One door with have one side with a Flush panel.
 - b. Panel core shall be staved lumber core.
7. Sanding: Machine sanded with not less than 120 grit, no cross grain scratches permitted. Each door hand sanded with orbital sander.

C. Door Hardware: Refer to Section 087100, and to drawings.

1. Machining for swing door hardware must be predicated on the issuance of physical samples, not templates.

D. Glazing for Exterior Doors: Single pane, clear, low-iron, tempered conforming to ASTM C1048, insulating glass, 1" thick.

E. Material for Screens: As selected by the Architect; provide samples.

F. Wood Finish:

1. For wood assemblies to be field painted, factory prime only using Benjamin Moore Moorcraft Alkyd Exterior Primer or approved equal.

2. Refer to section 099000 – Painting and Finishing.

G. Wood Species for Opaque Finish: Paint-grade cedar, veneer and solid stock.

2.2 FABRICATION

- A. Comply with the tolerance requirements specified herein. Machine doors for hardware requiring cutting of doors. Comply with final hardware scheduled and door frame shop drawings, and with hardware templates and other essential information required to ensure proper fit of doors and hardware.
- B. Take accurate field measurements of hardware mortises in frames to verify dimensions and alignment before proceeding with machining.
- C. Doors shall be factory sized to door opening and trimming and fitting are required in the field.
- D. Fit doors to suit frame-opening sizes indicated, with the following uniform clearances unless otherwise indicated.
 - 1. Three-degree bevel or bevel to suit frame sizes indicated, with 3/16" prefit in width, +0/-1/32" tolerances. Prefit top of door 1/8" + 1/16"/-0" and undercut as required by floor condition. Undercut shall not exceed 1/8" from bottom of door to top of finished floor; where threshold occurs undercut shall not exceed 1/8" from bottom of door to top of threshold.
 - 2. Machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3 unless otherwise noted. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
 - 3. Coordinate measurements of hardware mortises in frames to verify dimensions and alignment before factory machining.
- E. Glazed Openings: Factory install glazing in doors or transoms; install glass using manufacturer's standard elastomeric glazing sealant complying with ASTM C 920. Secure glass in place with removable wood moldings. Miter wood moldings at corner joints.
- F. Transom Panels: Fabricate panels to match adjoining doors in materials, finish, and quality of construction.
- G. Exterior Doors: Factory treat exterior doors after fabrication with water-repellent preservative to comply with WDMA I.S.4. Flash top of outswinging doors with manufacturer's standard metal flashing. Provide concealed fastening for weather-stripping at all exterior doors.
- H. Once doors are installed, maximum allowable warp, bow, cut or twist in doors shall be 1/16" as measured by the 1/16-inch feeler gauge and a straight-edge extending from corner to corner of the door face at stiles, top and bottom rails and along both diagonals.

PART 3 EXECUTION

3.1 WOOD DOOR FRAMES

- A. Where indicated on drawings, provide wood frames and bucks for wood doors. Bucks shall be braced, set straight and plumb and have anchors for building into adjoining construction; space

anchors not over two (2) feet apart (one foot from corners). Machine wood frames from specified solid wood to profiles indicated on drawings. Set frames plumb, level, square; securely attached to adjoining construction. Wood frames, bucks and trim shall conform to details.

3.2 INSTALLATION

- A. Refer to Section 062000 for installation of wood doors.

END OF SECTION

SECTION 083113 - ACCESS DOORS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to this Section.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the access doors as indicated on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Frameless recessed panel access doors at drywall ceilings and walls.
 - 2. Framed flush panel access doors at masonry and tile walls.
 - 3. Exposed areas and all ceilings provide GFRG doors.
 - 4. Provide access doors and frames for access from occupied spaces to the following, where indicated or required, and as directed by the trades of Divisions 22, 23 and 26.
 - a. All shutoff or balancing valves.
 - b. Fire dampers, as required.
 - c. Points of duct access.
 - d. Pull boxes.
 - e. Controls of mechanical and electrical items.
 - f. Masonry shafts for pipes and conduits, as required.
 - g. Pipe spaces, if required.
 - h. Inlets of fans.
 - i. Fusible link and splitter damper at filter bank.
 - j. Automatic damper and motor.
 - k. Equipment not otherwise accessible.

1.3 RELATED SECTIONS

- A. Gypsum Drywall - Section 092900.
- B. Ceramic Tiling - Section 093013.
- C. Valves and connections - Division 22.

1.4 QUALITY ASSURANCE

- A. For actual installation of the work of this Section, use only personnel who are thoroughly familiar with the manufacturer's recommended methods of installation and who are completely trained in the skills required.
- B. Fire-Resistance Ratings: Wherever a fire-resistance classification is shown, or for construction where access doors are installed, provide required access door assembly with panel door, frame,

hinge and latch from manufacturers listed in Underwriters' Laboratories, Inc. "Classified Building Materials Index" for the rating shown.

1. Provide UL label on each access panel.
 2. Provide flush, key operated cylinder lock.
- C. Size Variations: Obtain Architect's acceptance of manufacturer's standard size units which may vary slightly from sizes shown or scheduled.

1.5 SUBMITTALS

- A. Before any materials of this Section are delivered to the job site, submit complete manufacturer's literature to the Architect. Submit plans and schedules showing size and location of each and every access door for Architect's acceptance prior to installation.

1.6 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation, and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

PART 2 PRODUCTS

2.1 MATERIALS AND FABRICATION FOR NON-DRYWALL AREAS

- A. Provide access door assembly manufactured by Milcor Inc., Nystrom Inc., Karp Associates, Inc. or approved equal. Assembly shall be an integral unit complete with all parts and ready for installation.
- B. Fabricate units of continuous welded steel construction. Grind welds smooth and flush with adjacent surfaces. Provide attachment devices and fasteners of the type required to secure access panels to the types of supports shown.
- C. Frames for Masonry and Tile Wall Only (Flush Panel Units): Fabricate frame from sixteen (16) gauge steel. Provide frame with exposed flange not less than one (1) inch wide around perimeter of frame for exposed masonry and tile finishes.
1. For installation in masonry construction, provide frames with adjustable metal masonry anchors.
- D. Panels: Fabricate from fourteen (14) gauge steel, with concealed spring hinges set to open to 175 degrees. Provide removable pin type hinges of the quantity required to support the access panel sizes used in the work. Finish with manufacturer's factory applied baked enamel prime coat applied over phosphate protective coating on steel.
- E. Locking Devices
1. For non-rated access doors, provide flush, screwdriver operated cam locks of number required to hold door in flush, smooth plane when closed.
 2. For fire rated doors, provide locks as described in paragraph 1.4, B. herein.

- F. Inserts and Anchorage: Furnish inserts and anchoring devices which must be built into masonry for the installation of access panels. Provide setting drawings, templates, instructions, and directions for installation of anchorage devices. Coordinate delivery with other work to avoid delay.

2.2 RECESSED DRYWALL ACCESS DOORS

- A. Basis of Design: "Bauco Softline" as manufactured by Access Panel Solutions.
- B. Material: Extruded aluminum alloy 6063-T6.
- C. Door: Extruded aluminum alloy 6063-T6, 2.8mm thick, screwed in place gypsum board inlay with galvanized internal steel corner reinforcing.
- D. Hinges: Galvanized steel, free pivot hinge, allowing door to open 120 degrees. Doors shall be fully removable and complete with a safety cable, test rated for 135 lbs.
- E. Lock: Concealed touch latch.

2.3 FLUSH DRYWALL ACCESS DOORS

- A. Provide "Bauco Softline" as manufactured by Bauco Access Solutions, Inc., or approved equal, galvanized sheet steel door with soft transition frame. Door shall be 16-gauge steel, galvanized, with powder coat finish. Provide concealed pivoting rod type hinges permitting 175 degrees opening and touch latch with automatic dust shutters and welded sleeve.

2.4 FRP ACCESS DOORS

- A. Provide GFRG access panels with concealed frames with shell thickness of 1/8" to 3/16" equal to ceiling "Stealth" access panels by Wind-Lock or equal made by Intax Forms Inc. or Stylemark.
- B. Finishing: Same as drywall.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where access doors are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 COORDINATION

- A. Coordinate all work with the mechanical trades to ensure proper locations and in a timely manner to permit orderly progress of the total work.
- B. Set frames accurately in position and securely attach to supports with face panels plumb or level in relation to adjacent finish surfaces.
- C. Adjust hardware and panels after installation for proper operation.
- D. Remove and replace panels or frames which are warped, bowed, or otherwise damaged.

END OF SECTION

SECTION 085200 - WOOD WINDOWS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the wood windows, as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. New wood windows, operable and fixed, including frame and sash to match existing.

1.3 DEFINITIONS

- A. Performance grade number, included as part of the AAMA/NWWDA product designation code, is actual design pressure in pounds force per square foot used to determine structural test pressure and water test pressure.
- B. Window assembly: includes window frame and multiple adjacent frames when grouped together, as well as sash.
- C. Structural test pressure, for uniform load structural test, is equivalent to 150 percent of design pressure

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide wood windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified and that are of test size indicated below:
 - 1. Minimum size required by AAMA/NWWDA 101/I.S.2.
- B. AAMA/NWWDA Performance Requirements: For New Wood Sash in New Wood Frames, provide wood windows of the performance class and grade indicated that comply with AAMA/NWWDA 101/I.S.2.
 - 1. Performance Class: AW.
 - 2. Performance Grade: 40.
 - 3. Exception to AAMA/NWWDA 101/I.S.2: In addition to requirements for performance class and performance grade, design fixed glass framing system to limit lateral deflections of glass edges to less than 1/175 of glass-edge length at design pressure based on the following:

- a. Testing performed according to AAMA/NWWDA 101/I.S.2, Uniform Load Deflection Test.

C. Structural Loads:

- 1. Wind Loads: Wind loads as determined according to ASCE/SEI 7-10. Refer to structural drawings for applicable, project specific, wind criteria.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

- 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- 2. Review, discuss, and coordinate the interrelationship of wood windows with other exterior wall components. Include provisions for anchoring, flashing (including salvaging and repairing existing lead flashings), weeping, sealing perimeters, and protecting finishes.
- 3. Review and discuss the sequence of work required to construct a watertight and weather tight exterior building envelope, including weatherstripping, flashing and air barrier continuity, and other pertinent requirements.
- 4. Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

1.6 SUBMITTALS

A. Shop Drawings

- 1. Window types, sizes, locations, and quantities, keyed to scale elevations. Identify materials, finish and species of woods, glazing types, hardware, and anchoring provisions.
- 2. Details: Full or large scale, keyed to scale elevations. Show frame and sash construction, glazing, weep/vent provisions, hardware, weatherstripping, and anchorage / attachment to perimeter supporting elements.
- 3. Installation: Clearly show relation to adjoining construction. Give blocking requirements, clearances, and instructions necessary for proper installation.
- 4. Include plans, elevations, sections, hardware, accessories, operational clearances, and details of installation, including anchor, flashing, and sealant installation.
 - a. Include provisions for accommodating wall flashings and perimeter air barrier transitions at window head, jamb, and sill conditions.

B. Product Data: For each type of product.

1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes for wood windows.

C. Samples

1. Wood Samples: Duplicate pairs of samples for each species of unfinished and transparent finished wood proposed for production work.
 - a. Samples shall be large enough to accurately show typical appearance characteristics.
 - b. Each pair of samples shall show extremes of appearance characteristic of range proposed for the work. Wood used for production shall be within this range.
2. Exposed finishes: 2 by 4 inches.
3. Exposed Hardware: Full size units.

D. Product Schedule: For wood windows. Use the same designation indicated on drawings.

E. Mock-Ups: Window assemblies for typical wall openings shall be provided, complete and ready to install.

1. Mock-up shall include:
 - a. typical wood sash window with true divided lites, sash weights and chains, and single-glazed glass.
 - b. typical wood casement window with true divided lites, sash weights and chains, and single-glazed glass.
 - c. typical fixed wood window with simulated divided lites and insulated glass (IGUs).
2. Mockups may be incorporated into the project if accepted.
3. Mockup location shall be of an entire window replacement full unit including frame and sash.

F. Approval of mockups does not constitute approval from deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

G. Maintenance Instructions: Two copies of manufacturer's Technical Manual with recommendations for routine Owner maintenance of window units, hardware and wood finishes, and instructions for removing and replacing sash and glass.

1.7 INFORMATIONAL SUBMITTALS

- A. Fabricator and installer Qualifications: Not less than ten (10) years' prior successful production of units similar to those required. List projects having windows of the kind required for the project. Installations shall have been done to meet job conditions and performance requirements of the kind shown and specified for this Project. Give installation dates, locations, contact names, addresses, and phone numbers for each project.
- B. Test Report: Certified independent testing agency reports to show compliance with specified window performance requirements. Tests shall have been made within five (5) years of

submission. They shall include test descriptions and results, and complete enough product descriptions to show that tested products are representative of those proposed for the project.

1. Independent testing laboratory shall meet criteria of ASTM E 548.
2. Provide test reports for each type of wood window.

1.8 QUALITY ASSURANCE

- A. Historic Replication: Perform the Work consistent with project approvals and in compliance with authorities having jurisdiction.
- B. Manufacturer Qualifications: A manufacturer with at least five (7) years of experience in replicating existing, historic wood windows and capable of fabricating wood windows that meet or exceed performance requirements indicated and of documenting this performance by test reports, and calculations.
- C. Installer Qualifications: An installer acceptable to wood window manufacturer for installation of units required for this Project.
- D. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 1. Build mockup of typical window in existing building wall in location acceptable to Architect.
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

1.9 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver factory assembled windows in enclosed vans. Bundle and label loose materials as necessary to prevent loss and damage.
- B. Store products in a clean, protected, dry, well-ventilated building, on platforms or blocking at least 4" above floor. Stack products so they do not warp, bend or twist. Store windows upright, not flat or leaning, with at least 1/4" air space between units.
- C. Handle windows with clean hands or canvas gloves.

1.10 PROJECT CONDITIONS

- A. Connecting Work: Constructed or specified tolerances. Field dimensions agreed upon, prior to fabrication.
- B. Reference Points: Benchmarks and other required reference points shall be established.
- C. Environmental Conditions: Air temperature during installation shall be at least 40 deg. F. and rising, and the wind light or still. Work areas and materials shall be dry and free of ice and snow.

- D. Field Measurements: Verify wood window openings by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating wood windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

1.11 WARRANTY

- A. Fabricator's Warranty for Replacement Sash: Fabricator agrees to repair or replace wood replacement sash that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure to meet performance requirements.
 - b. Structural failures including excessive deflection, water leakage, and air infiltration.
 - c. Faulty operation of movable sash and hardware.
 - d. Deterioration of materials and finishes beyond normal weathering.
 - e. Failure of insulated glass.
 - 2. Warranty shall include the cost for labor and materials related to installation of sash to replace failed sash units, for the period indicated.
- B. Warranty Period for Replacement Sash, including Glazing Units: 15 years from date of Substantial Completion.
- C. Warranty Period for Labor Related to Replacement of Failed Sash Units: 2 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 FABRICATORS

- A. Fabricators: Subject to compliance with requirements, provide wood replacement sash and other replacement products for wood windows by one of the following:
 - 1. Re-View Windows Inc., Kansas City, MO.
 - 2. Custom Wood Reproductions, Inc., Westfield MA.
 - 3. Hirschmann Windows and Doors, West Rutland VT.
 - 4. KSD Custom Wood Products, Boscawen NH.
 - 5. Century Woodworking, Pleasant Valley, CT
 - 6. Vintage Millwork Restoration, Paradise, PA
 - 7. Woodstone Company, North Walpole, NH
 - 8. Artistic Door and Window, Avenel, NJ.

9. Duratherm Window Corporation, Vassalboro, ME.

10. Or approved equal.

- B. Source Limitations: Obtain wood replacement sash and other replacement products for wood windows from single source from single fabricator.

2.2 MATERIALS

- A. Lumber: Wood species for exterior and interior members shall be Sapele Mahogany. All pieces shall be dried to an average moisture content of 12% (9-14% for individual pieces) before assembly and treatment.
- B. Steel: Plates, Shapes, Bars; ASTM A 36/A 36M
- C. Anchor Bolts and Screws: Hex head through-bolts and flat head wood screws shall be of corrosion resistant type (stainless steel).
- D. Waterproof Adhesive: Resorcinol or melamine type.
- E. Anchor Clips: Teco, Simpson or equal.

2.3 WEATHER STRIPPING

- A. General: Provide full-perimeter and meeting rail weather stripping for each operable sash.
- B. Compression-Type Weather Stripping: Compressible weather stripping designed for permanently resilient sealing under bumper or wiper action; completely concealed when window is closed.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- a. National Guard Products, Inc.
 - b. Pemko Manufacturing Co., Inc.; an ASSA ABLOY company.
 - c. Reese Enterprises, Inc.
 - d. Zero International, Inc.
 - e. Amesbury Schlegel
- C. Weather-Stripping Material:
1. Cellular Elastomeric Gaskets: Preformed; complying with ASTM C 509.
2. Dense Elastomeric Gaskets: Preformed; complying with ASTM C 864.
- D. Metal Weather Stripping: Bronze weather stripping; designed either as one piece to seal by sliding into a groove in the sash or as two pieces that interlock with each other.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- a. Accurate Metal Weatherstrip Co. Inc.
 - b. Dorbin Metal Strip Manufacturing

- c. Or approved equal.

E. Perimeter Flash: Liquidflash by Vaproshield.

2.4 WOOD WINDOWS

A. Wood window frames are typically within wood-framed openings. Typical types are:

- a. double-hung
- b. casement
- c. fixed

2. See Window Schedule and Window Types drawings for unit operability.

B. Hardware General: Provide complete sets of window hardware consisting of sash balances, latches, lift devices, limit devices, and accessories indicated for each window or required for proper operation. Window hardware shall smoothly operate, tightly close, and securely lock wood windows and be sized to accommodate sash weight and dimensions.

- 1. Product numbers noted must be confirmed for suitability based on site dimensions and tolerances.

C. Fasteners: Comply with NWWDA I.S. 2-93 for fabrication in accordance with manufacturer's recommendations and accepted industry standards.

- 1. All fasteners used to attach frame components to be stainless steel.
- 2. All fasteners used to attach hardware to be bronze with oil rubbed finish. Comply with BHMA A156.18 for base material and finish requirements.

D. Provide hardware engineered, fabricated and installed to withstand heavy institutional use without failure as follows:

- 1. Double-hung operation.

- a. Material for Exposed Hardware: Solid bronze, with oil rubbed bronze finish.
- b. Balances: Size and capacity required to hold both top and bottom [bottom] sash stationary in any open position. Easily accessible and replaceable in the field without the use of special tools. Spiral balances will not be accepted.

- 1). Standard Balances: Block and tackle type. Class II AAMA 902-93, with a MAF ratio of 0.6 Force required to keep a moving sash moving up or down, not to exceed 45 pounds. Maximum sash weight of approximately 65 pounds per sash.

c. Window Hardware: Provide window hardware of the following types:

- 1). Sash Lift Handles: Two lift devices located on bottom rail of lower sash, typ; one lift device where sash width is less than 2'-0"
 - (a). Product: Phelps Company, Brattleboro VT (802-257-4314, phelpscompany.com); Model LF23.
- 2). Cam Latch: Latching device located at meeting rail to secure lower sash; of design similar to existing window latches as approved by Architect
 - (a). Product: Phelps Company, Brattleboro VT (802-257-4314, phelpscompany.com); Model LKF14.

- 3). Limit Devices: Sash opening limiter with keyed release for windows indicated.
 - (a). Product: Phelps Company; Model SVL90.
 - (b). Description: Solid bronze housing and bolt, with bronze strike plate for mounting on lower sash meeting rail, and steel operating key.
 - (c). Finish: Oil-rubbed bronze.
- E. General: Provide full-perimeter and meeting rail weather stripping for each operable sash.
- F. Compression-Type Weather Stripping: Compressible weather stripping designed for permanently resilient sealing under bumper or wiper action; completely concealed when window is closed.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. National Guard Products, Inc.
 - b. Pemko Manufacturing Co., Inc.; an ASSA ABLOY company.
 - c. Reese Enterprises, Inc.
 - d. Zero International, Inc.
- G. Weather-Stripping Material:
 1. Cellular Elastomeric Gaskets: Preformed; complying with ASTM C 509.
 2. Dense Elastomeric Gaskets: Preformed; complying with ASTM C 864.
- H. Metal Weather Stripping: Bronze weather stripping as indicated on Drawings; designed either as one piece to seal by sliding into a groove in the sash or as two pieces that interlock with each other.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Accurate Metal Weatherstrip Co. Inc.
 - b. Zero International, Inc.
 - c. Or approved equal.
- I. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.
 1. Exposed Fasteners: Do not use exposed fasteners to the greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

2.5 FABRICATION

A. Windows

1. Produced from standard components. Wood components shall be solid lumber. Like parts shall be interchangeable. Fitting, machining for hardware and glazing shall be done in the factory.
2. Frames: AWI Premium Grade Exterior Frames.
3. Sash: AWI Premium Grade Finished Exterior Sash. Fixed and operable sash incorporate removable interior glass stops for ease of reglazing.
4. Glazing Pattern:
 - a. For double-hung windows (unless otherwise noted): True divide lites and single-glazed lites with configurations to match existing windows. Muntin profiles shall range between $\frac{1}{2}$ " to $\frac{3}{4}$ " at true divided lites at locations noted on the drawings (subject to confirmation of structural requirement for muntin width to support single-glazed glass). See Window Details and Window Schedule. Interior stops are to be removable for reglazing.
 - b. For casement windows (unless otherwise noted): True divide lites and single-glazed lites with configurations to match existing windows. Muntin profiles shall range between $\frac{1}{2}$ " to $\frac{3}{4}$ " at true divided lites at locations noted on the drawings (subject to confirmation of structural requirement for muntin width to support single-glazed glass). See Window Details and Window Schedule. Interior stops are to be removable for reglazing.
 - c. For fixed windows (unless otherwise noted): Simulated divided lite and insulated glass unit (IGUs) for fixed windows. Muntin profiles shall be $\frac{1}{2}$ " at locations noted on drawings.
- B. Permanent Joints and Facings: Bonded with water resistant adhesive.
- C. Preservative Treatment: Water repellent preservative treatment per NWMA I.S.4.
- D. Single lite safety glass tempered (ASTMC C1048).
- E. For fixed windows, use insulated glass as specified in section 088000 – Glass and Glazing.

2.6 WOOD FINISH

- A. Clear stain by Sansin selected by Architect.
- B. Opaque painted finish in color to match existing as approved by Architect conforming to section 099000 – Painting and Finishing, for double-hung, fixed and casement units.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions to which this work is to be attached or applied, and correct any conditions which are detrimental to the proper and expeditious installation of the work. Starting of the work shall imply acceptance of the surfaces and conditions to perform the work as specified.

- B. Verify dimensions taken at the job site affecting the work. Bring field dimensions which are at variance to the attention of the Architect. Obtain decision regarding corrective measures before the start of installation.

3.2 INSTALLATION

- A. General: Install windows per approved shop drawings, in proper relation to adjoining construction. Do not twist frames or force fit them into poorly prepared openings. Anchor windows as required to satisfy design requirements. See manufacturer's installation instructions and approved shop drawings.
- B. Provide new head, jamb and sill flashings in masonry wall openings, secured to new wood blocking or to sound existing wood blocking. Install flashing, exterior sealant and weeps in manner that will prevent trapped moisture at existing flashings embedded in masonry walls.
- C. Center window units in wall openings, leaving a uniform interface caulking recess on all four sides.
- D. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.
- E. Set sill members in bed of sealant or with gaskets, as required, for weathertight construction.
- F. Anchorage: Install anchors through frame centerline beside shims. Anchor units to wood blocking with wood screws and to metal framing with toggle bolts; countersink anchor heads. All anchors shall be concealed by closed sash, or in the case of fixed units, with plugs.
 - 1. Anchor internal supports for built up window assemblies to perimeter construction in order to properly transfer design loads.
- G. Installation to conform to window manufacturer's requirements as indicated in the manufacturer's Technical Manual.
- H. Metal Protection: Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified in "Dissimilar Materials" Paragraph in Appendix B in AAMA/NWWDA 101/I.S.2.

3.3 ADJUSTING

- A. Adjust operating sashes and ventilators, hardware, and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.

3.4 PROTECTION AND CLEANING

- A. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.

- B. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Clean factory-glazed glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels and clean surfaces.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION

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SECTION 086300 - METAL FRAMED SKYLIGHT

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the metal framed skylight as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:
 - 1. Coordination for removal, salvage and reinstallation of existing laylight.
 - 2. Curb-mounted insulating glass glazed unit skylights.
 - a. Basis of Design: Wasco "Skymax," or approved equal.
 - 3. Gaskets and fasteners.
 - 4. Glass and glazing of skylight.

1.3 RELATED SECTIONS

- A. Carpentry - Section 062000.
- B. Sheet metal flashing - Section 076200.
- C. Glass and glazing – Section 088000.

1.4 QUALITY ASSURANCE

- A. Work of this Section, including design, engineering, fabrication, finishing, preparation at the job site, erection and glazing of the skylight system shall be the responsibility of the skylight manufacturer. The manufacturer shall be regularly engaged in the preceding phases of construction of skylights and be able to demonstrate that he has successfully performed on comparable projects over the previous five (5) years.
- B. Refer to Article 3.5 herein for field testing of skylight.
- C. Pre-Construction Conference: Attend a pre-construction conference with the Owner, Architect, Contractor and all involved trades to discuss the work and coordination with other trades.

1.5 REFERENCES

- A. Aluminum Association Incorporated (AA): SAS-30 Specifications for Aluminum Structures.
- B. American Architectural Manufacturers Association (AAMA)
 - 1. 501.3: Field Check of Water Penetration Through Installed Exterior Windows, Curtain Walls and Doors by Uniform Air Pressure Difference.

2. 2605.2: Specification for High Performance Organic Coatings on Architectural Extrusions and Panels.
 3. Glass Design for Sloped Glazing.
 4. Skylight Handbook Design Guide.
 5. Sloped Glazing Guidelines.
- C. American National Standards Institute (ANSI): Z97.1-1984 - Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
- D. American Society for Testing and Materials (ASTM)
1. A 193: Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High Temperature Service.
 2. A 307: Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
 3. B 209: Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 4. B 211: Specification for Aluminum-Alloy Bar, Rod, and Wire.
 5. B 221: Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes.
 6. B 316: Specification for Aluminum and Aluminum-Alloy Rivet and Cold-Heading Wire and Rods.
 7. C 719: Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cycle Movement.
 8. C 794: Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
 9. C 1036: Specification for Flat Glass.
 10. C 1048: Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
 11. D 395: Test Methods for Rubber Property-Compression Set.
 12. D 412: Test Methods for Rubber Properties in Tension.
 13. D 1171: Test Method for Rubber Deterioration - Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens).
 14. D 2240: Test Method for Rubber Property - Durometer Hardness.
 15. E 283: Test Method for Rate of Air Leakage Through Exterior Window, Curtain Walls, and Doors.
 16. E 330: Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.

17. E 331: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 18. E 547: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference.
 19. E 773: Test Method for Seal Durability of Sealed Insulating Glass Units.
 20. E 774: Specifications for Sealed Insulating Glass Units.
 21. E 783: Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.
- E. Consumer Product Safety Commission (CPSC): 16CFR Part 1201 - Architectural Glazing Standards and Related Material.
 - F. Glass Association of North America (GANA): Glazing Manual.
 - G. Insulating Glass Certification Council (IGCC): Classification of Insulating Glass Units.
- 1.6 SYSTEM DESCRIPTION
- A. Design Requirements
 1. Extruded aluminum members with a system of alternate serrations for attachment of exterior glass retainers with 1/4" x 20 stainless steel screws and snap on aluminum caps.
 2. Integral continuous interior guttering system within skylight framing members for positive drainage of condensation.
 3. Skylights shall have weep holes to drain water to the exterior, one 3/8" dia. Weep positioned within 6" of rafter base.
 4. Finish glazed exterior horizontal joints with field applied structural silicone or fully capped system.
 5. Full silicone wet seals along both sides of all exterior glass retainers.
 6. Aluminum gutters, with insulation and pitched liners where shown on drawings.
 - B. Performance Requirements
 1. Structural Members: Of sufficient sizes to support design loads of forty (40) psf live load, forty (40) psf wind load and fifteen (15) percent overload and 250 lbs. concentrated downward load applied anywhere on the surface without metal or glass failure. If prevailing Code requires greater loads, such greater loads shall comply.
 2. The deflection of a framing member in a direction normal to the plane of glass when subjected to a uniform load deflection test in accordance with ASTM E 330, and per the above specified loads, shall not exceed 1/175 nor one (1) inch of its clear span for spans less than twenty (20) feet or 1/240 of clear spans greater than twenty (20) feet.
 3. The deflection of a framing member in a direction parallel to the plane of the glass, when carrying its full dead load, shall not exceed an amount which will reduce the glass or panel bite below seventy-five (75) percent of the design dimension and the member shall have a

1/8" minimum clearance between itself and the edge of the fixed panel, glass, or component immediately adjacent, nor shall it impair the function of or damage any joint seals.

4. Design Factor of Safety: All structural components of the skylights, including members, glazing stops, weldments, and connections shall be capable of withstanding a static air pressure difference of 1.5 times the total design load, positive and negative, maintained without glass breakage, damage or distress to fasteners, or any other components when tested in accordance with ASTM E330. Permanent deformation of any frame or sash component after test-load release shall not exceed 1/500 of its span
5. Air Infiltration: Infiltration averaged over frontal area of skylights shall not exceed 0.01 cfm/sf when subjected to 6.25 psf positive pressure and tested in accordance with ASTM E 283.
6. Water Penetration
 - a. Water penetration is defined as any water exclusive of condensation that appears on the interior side.
 - b. Any water that enters the skylight shall be controlled within it and drained through its exterior surfaces.
 - c. Penetration shall not occur should skylights be subjected to the following inward pressures acting normal to any surface when exposed to a water discharge rate of five gallons of water per hour per square foot of frontal area and tested in accordance with the appropriate referenced specification.
 - 1). 15 psf static pressure for 15 minutes, ASTM E 331.
 - 2). 45 min. cycles at 15 psf with one (1) min., intervals at 0 psf with continuous water application per ASTM E 547.
7. Thermal Performance
 - a. Provide for such expansion and contraction of component materials from -20 deg. F. to one-hundred-eighty (180) degrees F. without causing buckling, stresses on glass, failure of seals, undue stress on structural elements, reduction of performance or other detrimental effects.
 - b. Average Thermal Conductance: Provide skylight systems with average U-factor of not more than 0.6 btu/h/ft²/°F when tested according to AAMA 1503. Architect may approve skylight systems with higher U-factors if thermal performance is limited by glazing requirements.
8. Where permitted by code, a 1/3 increase in allowable stress for wind or seismic load shall be acceptable, but not in combination with any reduction applied to combined loads. In no case shall allowable values exceed the yield stress.
9. Compression flanges of flexural members may be assumed to receive effective lateral bracing only from anchors to the building structure and horizontal glazing bars or interior trim which are in contact with fifty (50) percent of the member's total depth.
10. Thermal breaks shall be assumed to have no ability to transfer shear stress for composite action of flexural members. Elements jointed by a thermal break shall be assumed to act separately.

11. The skylight framing shall be designed to exert no horizontal reactions under vertical gravity type loads, (dead, snow, live). Unbalanced live loads, (wind, seismic, etc.), acting upon the skylight will produce horizontal reactions that shall be resisted by the support structure.
12. For Field Testing, refer to Article 3.5 herein.

1.7 SUBMITTALS

- A. Prior to construction of the work, submit shop drawings for the fabrication and installation of all work and associated components.
 1. Details of all work, at full scale as far as practical, showing metal and glass thicknesses, arrangement of components, of joining, details of all field connections and anchorage, field measurements, diagrams and details explaining provisions for thermal movement, waterproofing, fastening and sealing methods, glazing methods, insulation, metal finishes and all other pertinent information.
 2. Include structural calculations for the work and its anchorage to the building structure and all materials and all connections fully dimensioned. Show ultimate factor of safety. Drawings and calculations shall bear the seal and signature of a professional Engineer licensed in the State of New York. All calculations shall be in accordance with the current design rules of the Aluminum Association, AISI, AISC, and ACI.
 3. Show all dimensions including section thickness, frame lap over glass and edge clearance. Show tolerances for all dimensions including field dimensions, mill and shop dimensions and glass dimensions.
- B. Submit samples of all materials to be encompassed in the work in size and quantity, as required by the Architect. These will include, but not be limited to, samples of:
 1. Aluminum rafter component eighteen (18) inches long.
 2. Each type and thickness of glass 12" x 12".
 3. Gaskets, sealing materials, joint fillers, back-up rods and flashing.
- C. Manufacturer's Literature: Submit technical descriptive data and installation instructions for each type of glass and glazing material.
- D. Submit certification that skylight assembly, including glass, is capable of meeting performance criteria specified herein.

1.8 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Verify the availability of all specified items upon Contract signing, and order in advance to avoid delays to the work. Certain materials may require considerable lead-time for delivery.
- C. All materials are to be new. Handle, store, and install materials as recommended by the manufacturer except as required by these Specifications. Materials shall be delivered to the job

site in their original containers with the manufacturer's name, grade, number, and batch identification on the container or packaging.

- D. Keep all materials dry while transported, stored, and delivered. Do not allow materials to be exposed to any moisture at any time, and promptly remove exposed materials from the site.
- E. Store all materials on pallets and cover with canvas tarpaulins (not polyethylene), top to bottom.
- F. Handle all materials to avoid damage. Promptly remove from site and materials rejected by the Architect.
- G. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.9 WARRANTY

- A. General: Warranties specified in this section shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.
- B. Skylight Warranty: Provide written warranty signed by manufacturer, agreeing to repair or replace work that exhibits defects in materials or workmanship and guaranteeing weather-tight and leak-free performance. "Defects" is defined as uncontrolled leakage of water and abnormal aging or deterioration.
 - 1. Warranty Period: 2 years from date of Substantial Completion.
- C. Glass Warranty: Provide written warranty signed by manufacturer agreeing to repair or replace work that has or develops defects in the insulating glass. "Defects" is defined as seal failure or delamination.
 - 1. Warranty Period for Insulating Glass: 5 years from date of Substantial Completion.
- D. Finish Warranty: Provide written warranty signed by manufacturer agreeing to repair or replace work with finish defects. "Defects" is defined as peeling, chipping, chalking, fading, abnormal aging or deterioration, and failure to perform as required. (EDIT AS REQUIRED)
 - 1. Warranty Period for 2605 Liquid Finish: 20 years from date of shipment from the manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Manufacturers: "SkyMax" as manufactured by Wasco, or approved equal.

2.2 MATERIALS

- A. Curb Frame: Bright white high-performance PVC with neutral gray cap stock and minimum effective external wall thickness of 0.060 inch (1.5mm). Provide integral condensation gutter system with corners fully welded for waterproof quality.

- B. Retainer Frame: Extruded neutral gray aluminum alloy 6063-T5 (min). ASTM B 221 (ASTM B 221 M) with minimum effective thickness of 0.060 inch (1.5 mm).
 - 1. Curbs: Minimum 1 ½" wide field built or pre-fabricated curb (By Others)
- C. Thermal Break: Fabricate skylight units with thermal chambered PVC frame.
- D. Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other non-corrosive metal as recommended by manufacturer.

2.3 INSULATING GLASS SKYLIGHT UNITS

- A. General: Factory-assembled, curb-mounted unit consisting of insulating glass, gasketing, and inner frame designed to mount on separate curb.
 - 1. Products: "SkyMax" as manufactured by Wasco, or approved equal.
- B. Curb: Minimum 1 ½" wide field built or pre-fabricated (By Others).
- C. Condensation Control: Fabricate skylight units with integral internal gutters to collect condensation.
- D. Thermal Break: Fabricate skylight units with thermal chambered PVC.
- E. Shape and Size: As indicated by model number. Custom sizes available, not to exceed 32 SF.
- F. Insulating Glass: 1 1/16" IG comprised of a ¼" tempered SB70XL on #2 surface, 3/8" air, and an inner pane of clear heat strengthened laminated glass.
- G. Optional 1 1/16" insulating glass available. Contact manufacturer.

2.4 FABRICATION

- A. Framing Components: As follows:
 - 1. Factory fit and assemble components.
 - 2. Fabricate components that, when assembled, will have accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.
 - 3. Fabricate components to accommodate expansion, contraction, and field adjustment, and to provide for minimum clearance and shimming at skylight perimeter.
 - 4. Fabricate components to ensure that glazing is thermally and physically isolated from framing members.
 - 5. Fit and secure PVC frame joints by thermal welding.
 - 6. Fit and secure aluminum retainer joints with corner keys.

2.5 FINISHES

A. General

1. Comply with NAAMM "Metal Finishes Manual" for finish designations and application recommendations, except as otherwise indicated.
2. Provide colors or color matches as indicated on selected samples.
3. Protect mechanical finishes on exposed surfaces from damage by application of strippable temporary protective covering prior to shipment.
4. Corrosion Protection: Coat concealed surfaces which will be in contact with concrete, masonry, wood or dissimilar metals, in exterior work and work to be built into exterior and below grade walls and decks, with a heavy coat of bituminous paint. Do not extend coating onto exposed surfaces.

B. Aluminum

1. High Performance Coating: AA-C12C42R1x, cleaned with inhibited chemicals, conversion coated with an acid-chromate-fluoride-phosphate treatment, and painted with organic coating specified below. Apply finish in strict compliance with paint manufacturer's instructions using a licensed applicator.
 - a. Fluorocarbon Two-Coat System: Manufacturer's standard two-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2605-98.
 - b. Custom color and gloss as selected by the Architect.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where metal framed skylight is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work. Starting of work means acceptance of substrate.

3.2 PREPARATION

- A. Contact between aluminum and dissimilar metals shall receive a protective coating of asphaltic paint for the prevention of electrolytic action and corrosion.
- B. Do not start skylight installation until perimeter flashing systems are in place and (where applicable) roofing and flashing is completed at skylight curbs.

3.3 GENERAL WORKMANSHIP REQUIREMENTS

- A. Substrates must be dry, clean, and smooth. Do not work in rain or winds gusting over 30 mph, temperatures below 40°F, or in presence of any water. Comply with applicable recommendations by manufacturers of all materials for workmanship and handling except as modified in this Section. Conform to the handling standards of the American Architectural

Manufacturers Association (AAMA) Aluminum Curtain Wall Manual #10, "Care and Handling of Architectural Aluminum from Shop to Site." Provide convenient access to the Architect for observation.

- B. All mechanics on this project shall be completely familiar with these Contract Documents and the approved shop drawings prior to any installation.
- C. Do not permit the edges of the insulated glass to contact any solvents.
- D. Do not dilute primers, solvents, cements, adhesives, coatings, or sealants. Keep containers closed except when removing materials from them.
- E. Use gloves and tools free of dirt, grease, and other contaminants.
- F. Coordinate installation of metal flashing with other trades. Isolate all dissimilar metal surfaces using a specified isolation layer as a separator.
- G. All glass shall "float" in the opening and shall be fully separated from contacting mullions, fasteners, and other rigid components at all times, including while in service.
- H. Seal joints watertight (as shown on drawings) with specified sealant unless otherwise indicated. Do not allow glazing sealants to impede drainage of water in the glazing rabbet; do not "plug" glazing pocket corners with sealant.
- I. Glazing pockets shall weep to the exterior at the sill of each opening. Systems shall not direct water to contact edges of insulating glass units. Prevent water infiltration at weeps. Coordinate gutter and weep systems with other sections and surrounding work.
- J. Allow gaskets to relax and recover several hours prior to installation. All gaskets shall be oversized 1% to 2% in length beyond the daylight dimensions for the glass. Install gaskets by inserting gaskets at ends and center first, then crowding remainder of gasket length into the race. Seal gasket corners with silicone sealant.
- K. If installation cannot be completed before the end of a work day, cover opening with plywood and make watertight.
- L. For installation of glazing, follow all procedures and reference standards contained in Section 088000 "Glass and Glazing."

3.4 INSTALLATION

- A. Install skylight frame, glass and accessory items as needed in accordance with manufacturer's instructions.
- B. Coordinate for removal, salvage, and reinstallation of existing laylight.
- C. Install skylight system under the direction of the skylight manufacturer's own experienced mechanics. Coordinate the installation of the first skylight with the Architect so that he can be present. Installation methods shall be established during first installation. First installations shall serve as model for installation of balance of work.
- D. Erect system plumb and true, in proper alignment and relation to established lines and grades as shown on approved shop drawings.

- E. Anchor skylight to structure in strict accordance with approved shop drawings. Inspect frames immediately before placing into opening for any damage, including for finish damage and discontinuous frame corner seals. Report damaged components to the Architect for direction. Repair damage to the satisfaction of the Architect or Architect's representative. If satisfactory repair of damaged component is not possible, replace with new undamaged component.
- F. Use high performance silicone sealants to seal horizontal joints between glass panels and silicone sealant to wet seal joints between snap-on cap retainers and glass.
- G. Apply sealing materials in strict accordance with sealant manufacturer's instructions. Before application remove mortar, dirt, dust, moisture and other foreign matter from surfaces it will contact. Mask adjoining surfaces to maintain a clean and neat appearance. Tool sealing compounds to fill the joint and provide a smooth finish.

3.5 TOLERANCES

- A. All parts of the work, when completed, shall be within the following tolerances:
 - 1. Maximum Variation from Plane or Location Shown on Approved Shop Drawings: 1/8" per twelve (12) feet of length or 1/2" in total length.
 - 2. Maximum Offset from True Alignment Between Two Members Abutting End to End, Edge to Edge in Line or Separated by Less than Three (3) Inches: 1/32".

3.6 FIELD QUALITY CONTROL

- A. Water Leakage Testing: Employ an independent testing agency to perform water leakage testing of completed portions of the skylight systems.
 - 1. Test Procedure: AAMA 501.2.
 - 2. Testing Parameters:
 - a. Locations; Perform testing in at least four locations on the skylights.
 - b. Water Application Pressure: 35 psi.
 - c. Test Duration; 2 min/ft. of joint being tested (each tested "location" shall consist of 5 ft. of joint).
 - d. Passing Criteria: No visible water on the interior of the skylights. Water controlled by flashing and gutters that is drained to exterior and cannot damage adjacent materials or finishes is not considered water leakage.
 - 3. Submit a test report describing the conditions of the test and its results.
- B. If a test fails, two (2) or more locations shall be re-tested at Contractor's expense.

3.7 CLEANING

- A. Install skylight frame and associated metal to avoid soiling or smudging finish.
- B. Clean glass at time of installation.

END OF SECTION

SECTION 087100 - FINISH HARDWARE

PART 1- GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the Contract Documents.
- B. See additional detailed restoration notes on drawings and schedules.

1.2 WORK INCLUDED

- A. Work of this Section includes all labor, materials, equipment and services necessary to restore and furnish all the finish hardware as shown on the drawings and specified herein.

1.3 RELATED WORK

- A. Carpentry - Section 062000
- B. Steel Doors and Frames - Section 081113
- C. Stile-and-Rail Wood Doors and Frames- Section 081433
- D. Restoration Treatments for Historic Metals – Section 050300
- E. Restoration Treatments for Historic Woodwork – Section 060312
- F. Restoration Treatment for Period Openings – Section 080300
- G. Paints and Coatings - Section 099000
- H. Specification Appendix # 1 – Existing Doors Photosurvey
- I. Door and Hardware Restoration Notes and Schedule on Drawings for detailed scope.
- J. Intrusion Detection System – Section 281600

1.4 QUALITY ASSURANCE

- A. Hardware shall be suitable and adapted for its required use and shall fit its designated location. Should any hardware as shown, specified or required fail to meet the intended requirements or require modification to suit or fit the designated location, determine the correction or modification necessary and notify the Architect in ample time to avoid delay in the manufacture and delivery of hardware.
- B. For fire rated openings provide hardware complying with NFPA Standard No. 80 requirements of authorities having jurisdiction.

- C. Barrier Free Requirements: Local laws complying with the American Disabilities Act shall apply.
- D. Hardware Supplier Qualifications: The Hardware Supplier shall have been regularly engaged in the sale, distribution, and restoration of Finish Hardware for projects of comparable scope and size for a minimum of ten (10) years. The Hardware Supplier shall have an AHC of the Door and Hardware Institute on staff who will be responsible for overseeing the scheduling, detailing, ordering, and coordinating of Finish Hardware, and shall be available for consultation with the Architect, at no additional cost to the Owner, during progress of construction. The Hardware Supplier shall be a direct factory authorized distributor and restoration specialist for all Finish Hardware items being furnished in accordance with this Specification.

1.5 SUBMITTALS

- A. Before any finish hardware is ordered or purchased, submit catalog cuts and a complete Hardware Schedule of Finish Hardware. Each item listed in the Hardware Schedule shall be identifiable with respect to manufacture, brand, catalog number, material, and finish.
 - 1. Schedule of Finish Hardware shall be submitted in the Vertical Schedule Format per Door and Hardware Institute Sequence & Format for the Hardware Schedule (1996).
 - 2. Submit a Hardware Restoration Schedule for conformance to project needs and deviations if required.
 - 3. Submit a Restoration Process Description for GC/CM, Architect, and Owner review to ensure restoration scope is achieved.
- B. Where submission differs from Schedule given herein, use different color or other means of identification to bring change to the attention of the Architect.
- C. Hardware Supplier shall provide all product information, wiring diagrams, and electrical data to the Electrical Contractor.
- D. Samples: Submit samples or mock-ups as requested by Architect. Do not proceed with installation until samples have been approved. Approved samples may be installed in the work after substantial completion of work. Samples shall include one (1) each of the following samples:
 - 1. Hinge (Each Type)
 - 2. Pivot Set
 - 3. Surface Closer
 - 4. Surface mounted lock box in brass in light antique finish to match existing.
 - 5. Surface mounted lock box in iron with knob in light antique finish.
 - 6. Floor Stop

7. Push-Pull Bars

8. Finish Sample of all other hardware, as requested by the Architect.

1.6 PRODUCT HANDLING

- A. Pack finish hardware in approved manufacturer's containers, complete with trimmings, bolts, screws, washers, etc., as required for application and securement. Each container shall bear a suitable label which will state the quantity and kind of contents of said container, as well as identifying marks relating to the approved Hardware Schedule and its location in the project.
- B. Levers, handles, pulls and any other items of finish hardware with easily damaged finishes shall be individually wrapped before placing in containers and with sufficient sheet cloth or cotton-backed paper which shall be adequately tied with heavy strings; all as necessary to protect the finishes.
- C. Finish hardware shall be delivered, as directed, to the building site or the factories of the various fabricators of metal work to which such hardware is to be applied. Deliver hardware in the order required and in ample time to permit application at the building, or fabricators' shops, within the time required for the completion of the building.

1.7 JOB CONDITIONS AND REQUIREMENTS

- A. Hardware vendor responsible for restoration is to coordinate with GC/CM on door restoration. Removal and cataloguing of all existing hardware may be required. Restoration and replacement of historic and vintage hardware is specific and GC/CM and hardware vendor are to closely coordinate work.
- B. Templates: Promptly following approval of the Hardware Schedule by the Architect, furnish and deliver template information, to the fabricators, of items to which finish hardware is to be applied.
 - 1. Such deliveries shall be made in ample time to avoid delays in such work of said fabricators. Provide drawings, schedules and detailed information to other trades as necessary for them to accommodate and prepare their work to receive the finish hardware.
- C. Field Service: The hardware supplier shall assign a competent representative, acceptable to the Architect, to be at the jobsite each time a shipment of finish hardware is received. Such representative shall assist in "checking in" these shipments and shall secure a receipt covering the contents of each shipment to assure new and existing restored hardware are received. In addition, such representative shall be available for immediate call to the jobsite when, in the opinion of the Architect, his presence is necessary.
- D. Cooperation and Coordination
 - 1. Cooperate and coordinate work with that of other trades supplying materials or performing work in contact with, connecting to, underlying, or overlaying the work of this Section.
 - 2. Provide complete data of requirements for work of this Section to those other trades whose work is affected by or dependent upon the work of this Section.

3. Furnish all items to be built into other work in ample time to avoid delaying the progress of such work.
4. Examine all drawings covering the work of this Section and refer to all other drawings, including mechanical and electrical drawings, which may affect the work of this Section or require coordination by this trade.
5. Existing

E. Existing Conditions:

1. Hardware Supplier shall verify all existing conditions in the field to ensure compatibility with hardware specified in the Hardware Sets herein. Any discrepancies between the existing field conditions and hardware specified shall be brought to the attention of the Architect immediately. Hardware Supplier shall not order any hardware until all discrepancies are rectified and written approval is granted by the Architect.
2. Restoration assumptions have been made based on visual and operational surveys of existing door hardware. Hardware vendor to verify all assumptions prior to bid and provide adequate costs for all hardware restorations.

1.8 WARRANTY

- A. Provide a letter from the manufacturer of surface mounted closers, warranting such closers for five (5) years.
- B. Provide a letter from manufacturer of concealed floor closers, warranting such closers for twenty-five (25) years.
- C. The hardware supplier shall provide a written one (1) year warranty for the rest of the items furnished under this Section.
- D. All warranties shall be effective beginning with the date of Beneficial Occupancy.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of finish hardware are indicated herein. Products are identified by using appropriate hardware designation numbers.
- B. Manufacturers are listed for each hardware type required. Provide either the product designated, or approved equal.
- C. Proprietary Products: References to specific proprietary products are used to establish minimum standards of utility and quality. Other materials may be considered by the Architect in accordance with the provisions stated in Division 1 of these specifications.

- D. Notwithstanding anything to the contrary in this specification or the drawings, the finish hardware shall conform to the requirements of governmental authorities having jurisdiction and such requirements shall be followed as if specifically set forth in this specification.
- E. Finish hardware shall conform to the applicable requirements of the American Insurance Association, and the National Board of Fire Underwriters' Laboratories, Inc., and other local authorities having jurisdiction, and each such item shall bear a label or mark of the Underwriters' Laboratories, Inc., indicating its conformity with such requirements for use in connection with its specified location.
- F. Finish hardware shall be uniform in color and finish and free from imperfections affecting its appearance, function, operation and serviceability. Such hardware shall be suited and adapted to its required use and shall fit its respective location.
- G. Where the finished shape or size of members receiving finish hardware are such as to prevent or render unsuitable the use of the specific types or sizes of such hardware, suitable types or sizes shall be furnished, having as nearly as practicable the same function, operation and quality as the specified hardware.
- H. Bolts, screws, escutcheons, spindles, knobs, etc. and other fastenings required for the application of the finished hardware shall be of size and type to fit requirements and shall be of the same material and finish as the exposed parts of such hardware which they adjoin. Exposed screws and bolts shall have countersunk oval heads and bolts shall be provided with cap nuts. Countersunk part of screw and bolt holes shall be finished smoothly without sharp edges and form a firm seal for such screw and bolt heads. Full threaded wood screws shall be furnished for all wood applications. No thru bolts will be allowed. Sex-nuts and bolts shall be provided on push/pulls, exit devices, closers, etc. when being attached to mineral core or particle core wood fire doors.

2.2 PRODUCTS AND MANUFACTURERS

- A. The following are acceptable manufacturers as indicated in the Hardware Sets.
- B. Substitution requests must be made in accordance with Division 1 of these Specifications.
No substitutions will be accepted after the bid date.

ABH: Architectural Builders Hardware (ABH)

ACC: Accurate Lock & Hardware

BAL: Ball and Ball

BES: Best Access

IVE: Ives

LCN: LCN

SCH: Schlage

SIW: Simonswerk North America

ZER: Zero International

KEY CABINETS: TelKee.

2.3 SPECIFIC ITEMS

A. Hinges

1. Minimum of three (3) hinges per door leaf up to 7'-6" high. Provide one additional hinge per 2'-6" or fraction thereof.
2. Hinges shall be of types, sizes and materials as required to suit door weights thickness and fire ratings.
3. Unless otherwise specified in restoration, hinges shall be standard weight. New doors 3'-4" in width shall receive 5 x 4½ .146 gauge hinges. New doors over 3'-4" in width shall receive 5 x 4½ .190 gauge hinges.
4. Hinge sizes shall be detailed so that the least amount of projection shall be visible from the frame.
5. Unless otherwise specified hinges shall have concealed ball bearings (combination anti-friction or oil impregnated) and five (5) knuckles.
 - a. Standard doors shall have non-rising pins.
 - b. Doors exposed to the public, and other secure areas, as determined by the Owner, shall have non-removable pins.
6. Electric Hinges: Coordinate voltage and other electrical requirements with applicable portions of Division 16 "Electrical". Unless otherwise specified, provide all electric hinge modifications by Command Access Technologies.
7. Continuous Hinges: Unless otherwise specified in the Hardware Sets, continuous hinges shall be bronze, stainless steel, or aluminum with a full length Teflon coated stainless steel pin not less than ¼" in diameter.

B. Pivots

1. Provide quantities and types of pivots (offset, intermediate, or center) as required to suit door sizes and weights.
2. Pivot sets (offset and center) shall consist of top and bottom pivots, unless otherwise indicated.
3. Provide fire rated pivots on all rated doors in a labeled opening.

C. Closers

1. Unless otherwise indicated, closers shall not be visible on the public side of doors. Closers opening into public spaces shall be provided with parallel arms and brackets to suit.
2. Closers shall be sized in accordance with the accepted manufacturer's standards to suit height, width, weight of door and draft conditions.
3. Provide weather sealing compound for each exterior floor closer.

D. Locking and Latching Devices

1. Mechanical: Provide types, functions, as specified. Coordinate with Owners keying requirements.
 - a. Unless otherwise specified in the Hardware Sets, tubular style locksets or latchsets will not be accepted in lieu of cylindrical style sets specified.
 - b. Unless otherwise specified in the Hardware Sets, ANSI Grade 3 deadlocks will not be accepted
2. See Security Plans and Specifications for intrusion detection devices located on doors.

E. Keys and Keying

1. Coordinate new keying requirements with requirements of existing **Best Access Small Format Interchangeable Core** keying system.
2. Provide three (3) keys for each differently keyed lock. Indicated locks shall be keyed differently.
 - a. Locks to the following spaces shall be keyed alike:
 - 1) Mechanical Equipment Rooms, Electrical Panel Rooms, and Telephone Equipment Rooms, Janitors Closet..
 - 2) Entrance locks.
 - 3) Other locks; consult Owner.
3. Provide one hundred (100) key blanks.
4. Provide three (3) Master Keys.
5. Provide all cylinders as Construction Master Keyed with All Brass Core.
6. Provide key control system, including key cabinet by TelKee, with capacity to store 150% of keys furnished.
7. Final keying requirements to be determined by the Owner.

- F. Stops: Provide stops to limit the degree of opening, helping to prevent damage to adjacent walls, columns, equipment, the door or its hardware.

- 1. Overhead Stops

- a. Size overhead stops to suit door width, height, weight and draft condition.
 - b. Overhead stops shall have stainless steel tracks with built-in shock absorber with 5-7 degree compression before dead stop. The arm shall be stainless steel with finish as noted.

- G. Bronze Pushes and Pulls: Provide concealed fasteners where practical. Where exposed fasteners are required provide flush type finished to match push or pull.

- H. Bronze Flush Bolts: Provide top and bottom extension type flush bolts, mounted twelve (12) inches and seventy-two (72) inches respectively from the bottom of each door, where scheduled. Provide each bottom flush bolt with a dustproof strike.

- I. Silencers: Provide silencers for all non-gasketed and non-weatherstripped frames. Provide three (3) for each single swing door and two (2) for each pair of doors.

- J. Automatic Door Bottoms: Unless otherwise specified in the Hardware Sets, automatic door bottoms shall be actuated with an operating force not to exceed one and one-half (1½) pounds.

2.4 FINISHES

- A. All hardware items should be provided unfinished and will be shop finished by Ball & Ball in "Light Antique Brass".
- B. Hardware items that cannot be provided unfinished will be stripped and refinishes by Ball and Ball in "Light Antique Brass".

PART 3 - EXECUTION

3.1 GENERAL

- A. Make periodic checks during construction in order to ascertain that the finish hardware furnished has been installed correctly. After completion of all construction work, adjust finish hardware to work properly; test all keys and adjust as required for smooth, free operation.
- B. Door saddle materials vary. Stone, new or modified wood noted on the Door Schedule. Provide bronze Saddles and Thresholds from Zero International (www.zerointernational.com).
- C. SMLB = Surface Mounted Rim Lock Box
SMPB = Surface Mounted Rim Passage Box

3.2 HARDWARE SETS

Hardware Group No. 01 - RESTORE EXISTING HARDWARE

For use on Door #(s):

102.3	104A	105A.1	106.1	106.2	109.1
109.3	111	122.1	122.2	122.3	122.4
122.5	123.1	123.2	123.3	123.4	125.2
129.2	203.1	203.2	203.3	203.4	204.1
204.2	205.1	205.2	207.1	207.2	209.2
209.3	210	216.1	216.2	216.3	217
222	223	B-1.1	B-5.1		

107 partial restore, see HW # 24 as well

Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	HARDWARE		
		PATCH, REPLACE, REPAIR AND RESTORE AS REQUIRED AND RECONDITION AS PER NOTES ON DOOR SCHEDULE		B/O

Hardware Group No. 02 - NO HARDWARE REQUIRED - CASED OPENING OR SECURED IN PLACE

For use on Door #(s):

108A.2	114.1	116.3	119.3	120	122.6
209A	212.2	213A	217A	314.4	

Hardware Group No. 03 - NO HARDWARE REQUIRED - TOILET PARTITION SYSTEM

For use on Door #(s):

127.3	127.4	127.5	127.6	127.7	127.8

Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	HARDWARE		
		ALL HARDWARE BY PARTITION SYSTEM		B/O

Hardware Group No. 04A - BRASS SMLB (8" X 4.5") X STRIKE, BALL KNOB

For use on Door #(s):

108A.1 125.1 206.2 209.1 B-7

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	605	BES
2	EA	BRASS KNOB	F32-055		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	BRASS SMLB & STRIKE X SETUP TO RECEIVE BEST CORE	x90-002		BAL

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE
FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 04B - BRASS VERTICAL SMLB (4" X 6") X STRIKE, BALL KNOB

For use on Door #(s):

114

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	605	BES
2	EA	BRASS KNOB	F32-055		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	BRASS SMLB & STRIKE X SETUP TO RECEIVE BEST CORE	X90-015		BAL

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE
FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 05 - IRON SMLB (8" X 4.5") X STRIKE, BALL KNOB

For use on Door #(s):

101 105.1 110.1 119.1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	605	BES
2	EA	BRASS KNOB	F32-055		BAL
1	EA	BRASS HINGES	H1881-022		BAL
1	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	IRON SMLB & STRIKE X SETUP TO RECEIVE BEST CORE	X90-021		BAL

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 06A - IRON SMPB (6" X 4") X STRIKE, BALL KNOB

For use on Door #(s):

105A.2 110.2 116.2 119.2

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	BRASS KNOB	F32-055		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	IRON SMLB & STRIKE X SETUP TO RECEIVE BEST CORE	X95-067		BAL

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 06B - SMOOTH IRON SMPB (8" X 4.5") X STRIKE, BALL KNOB

For use on Door #(s):

102.1 102.2 103.1 104

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	BRASS KNOB	F32-055		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	IRON SMLB & STRIKE X SETUP TO RECEIVE BEST CORE	X95-068		BAL

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE
FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 07 - Not Used

Hardware Group No. 08 - SMPB IRON CASE (8" X 4.5"), BALL KNOB, INSWING

For use on Door #(s):

105.2 115.1 116.1 117.2

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	BRASS KNOB	F32-055		BAL
3	EA	BRASS HINGES	H1881-022		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	IRON SMPB & STRIKE	X95-068		BAL

1 7/8" ROSETTES

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE
FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 09 – DUMMY IRON SMPB X STRIKE (8" X 4.5"), BALL KNOB

For use on Woodwork #(s):

105A.3

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	BRASS KNOB	F32-055		BAL
1	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	IRON SMPB & STRIKE - DUMMY PASSAGE	X95-057 - SPECIAL - NON FUNCTIONAL DUMMY		BAL

FAKE DOOR (NON OPERABLE)

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE
FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 10 - RESTORE EXISTING HARDWARE & ADD KNOB AND RELATED PARTS

For use on Door #(s):

109.2

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	MISC	COORDINATING SPINDLE & FITTINGS		B/O
1	EA	HARDWARE	REPLACE, REPAIR AND RESTORE AS NOTED AND AS PER NOTES ON DOOR SCHEDULE & DRWGS		B/O
2	EA	BRASS KNOB & SPINDLE	F32-055		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE
FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 11 - SMPB IRON CASE (8" X 4.5"), BRASS KNOB ONE SIDE, FLUSH PULL ONE SIDE

For use on Door #(s):

103.2 112

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	1/2" BRASS PIVOT SET	T1/D1/D1/B1		ACC
1	EA	BRASS KNOB	F32-055		BAL
1	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	IRON SMPB & STRIKE DUMMY	X95-057 DUMMY		BAL
1	EA	ADJ BALL CATCH	347	B4	IVE
1	EA	FLUSH PULL	960	605	IVE

DOOR #112 - ROOM 105A = FLUSH SIDE, ROOM 112 = SMPB DUMMY SIDE

DOOR #103.2 - ROOM 103 = FLUSH SIDE, ROOM 107A = SMPB DUMMY SIDE

Hardware Group No. 12 - IRON SMPB (6" X 4") X STRIKE, BALL KNOB

For use on Door #(s):

118

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	BRASS KNOB	F32-055		BAL
1	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	IRON SM PRIVACY & STRIKE & THUMB SLIDE LOCK	X95-067		BAL

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 13 - NO HARDWARE REQUIRED

For use on Door #(s):

117.3

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	HARDWARE	ALL HARDWARE BY ELEVATOR MANUFACTURER		B/O

Hardware Group No. 14 - SMLB IRON CASE (6" X 4"), BRASS KNOB, OUTSWING, EXTERIOR DOOR

For use on Door #(s):

117.1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	605	BES
2	EA	BRASS KNOB	F32-055		BAL
3	EA	BRASS HINGES	H1881-022		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	BRASS SMLB & STRIKE X SETUP TO RECEIVE BEST CORE	X90-001		BAL
1	EA	SURFACE CLOSER	1461 HCUSH DS WMS	US3	LCN
1	SET	GASKETING	8303G-S	G	ZER
1	EA	THRESHOLD	545B	B	ZER

FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 15 - NEW FIRE RATED, STAIR EGRESS, PASSAGE, STOP ARM CLOSER

For use on Door #(s):

121.1 121.2 218 313

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	PASSAGE SET	8725UL SERIES LESS LEVERS		ACC
3	EA	BRASS HINGES	H1881-022		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
2	EA	ORNAMENTAL LEVER BRASS	X844-082		BAL
1	EA	SURFACE CLOSER	1461 CUSH DS WMS	US3	LCN
1	EA	GASKETING	188FSBK 17FT (5182MM) PSA	BK	ZER

Hardware Group No. 16 - NEW FIRE RATED, EGRESS, PANIC, STOP ARM CLOSER

For use on Door #(s):

124

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	MORTISE CYLINDER X CONST CORE	1E74	605	BES
6	EA	BRASS HINGES	H1881-022		BAL
1	EA	COORDINATOR - SHORT BAR	3780	S2	ABH
2	EA	PANIC HARDWARE	5547WDC-L-17-SNB-#10WDA	605	VON
2	EA	SURFACE CLOSER	1461 CUSH DS WMS	US3	LCN
1	EA	THRESHOLD	545B	B	ZER
2	EA	BRASS LEVER	X844-082 CUSTOM ADA LEVER		BAL

WEATHERSEALS AND OVERLAPPING ASTRAGAL BY DOOR MANUFACTURER

Hardware Group No. 17 - NARROW MORTISE, STOREROOM FUNCTION

For use on Door #(s):

219

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	605	BES
1	EA	MORTISE CYLINDER X CONST CORE	1E74	605	BES
1	EA	NARROW BACKSET STORE ROOM LOCK & THUMBTURN - LESS LEVERS	8559.2.LxL 7.2mm	605	ACC
2	EA	BRASS KNOB	F32-055		BAL
3	EA	BRASS HINGES	H1881-022		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL

Hardware Group No. 18 - NEW NARROW BACKSET LOCKSET, OFFICE FUNCTION, BRASS KNOB

For use on Door #(s):

129.1 221.1 221.2 312.1 312.3

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	605	BES
1	EA	MORTISE CYLINDER X CONST CORE	1E74	605	BES
1	EA	NARROW BACKSET OFFICE LOCK & THUMBTURN - NO LEVERS	8556.2.LxL 7.2mm	605	ACC
2	EA	BRASS KNOB	F32-055		BAL
3	EA	BRASS HINGES	H1881-022		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE
FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 19 - NEW IRON SMPB (8" X 4.5") X STRIKE, BALL KNOB, H HL STRAP HINGES

For use on Door #(s):

202

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	BRASS KNOB	F32-055		BAL
1	EA	4" HL STRAP HINGES	H19-079		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	SMOOTH IRON SMPB & STRIKE X	X95-068		BAL

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE
FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 20A - BRASS SMLB (6" X 4"), BEST CORE

For use on Door #(s):

126.2

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	605	BES
2	EA	BRASS KNOB	F32-055		BAL
3	EA	BRASS HINGES	H1881-022		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	BRASS SMLB & STRIKE X SETUP TO RECEIVE BEST CORE	X90-001		BAL

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 20B - BRASS SMPB (6" X 4"), NO LOCK

For use on Door #(s):

206.1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA				
2	EA	BRASS KNOB	F32-055		BAL
2	PR	ROSE BRASS	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
1	EA	BRASS SMPB & STRIKE X	X95-056		BAL

RESTORE EXISTING HINGES

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 21 - FAMILY RESTROOM DOOR, NARROW BACKSET PASSAGE, ADA LEVER, TRACK CLOSER

For use on Door #(s):

127.1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	NARROW BACKSET PASSAGE - LESS LEVERS	8525.134.LxL 7.2mm	605	ACC
3	EA	BRASS HINGES	H1881-022		BAL
2	PR	ROSE	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
2	EA	BRASS LEVER	X844-082 CUSTOM ADA LEVER		BAL
1	EA	SURFACE CLOSER	1461T BUMP DS WMS	US3	LCN

Hardware Group No. 22 - JANITOR CLOSET DOOR, NARROW BACKSET STOREROOM LOCK, BEST CORE, ADA LEVER, SURF OH STOP

For use on Door #(s):

127.2

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	605	BES
1	EA	MORTISE CYLINDER X CONST CORE	1E74	605	BES
1	EA	NARROW BACKSET STORE ROOM LOCK WITH THUMBTURN - LESS LEVERS	8559.2.LxL 7.2mm	605	ACC
3	EA	BRASS HINGES	H1881-022		BAL
2	PR	ROSE	M-ROSE W/HEAVY DUTY BUSHING XSP-011		BAL
2	EA	BRASS LEVER	X844-082 CUSTOM ADA LEVER		BAL
1	SET	SURFACE OVERHEAD STOP	4422 SERIES		ABH

1 7/8" ROSETTES

Hardware Group No. 23 - Not Used

Hardware Group No. 24 - IRON RIM DEAD BOLT ONLY LOCK BOX

For use on Door #(s):

107

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	605	BES
1	EA	IRON DEAD BOLT RIM LOCK	X90-015 (4" X 6")		BAL
1	EA	EXTERIOR IRON CYLINDER	XSP-013		BAL

SEE RESTORATION CATEGORY AS IN ADDITION

FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

REPAIR, REPLACE OTHER HARDWARE AS NOTED, NEW LOCK TO BE FURNISHED IN SIZE NOTED. SEE DOOR RESTORATION NOTES FOR HOLES FROM PREVIOUS HARDWARE AND BACKSET REPAIRS. PROVIDE DUTCHMAN OR FILL PRIOR TO SETTING NEW HARDWARE
FIXED BIT KEY PINNED TO LOCK AS TURN PIECE IN LIEU OF THUMB SLIDE

Hardware Group No. 25 - EXISTING HARDWARE TO REMAIN

For use on Door #(s):

CB101.2 CB102.1 CB102.2 CB102.3 CB103.1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR

REFERENCE NOTES ON DOOR SCHEDULE

Hardware Group No. 26 - EXISTING HARDWARE TO REMAIN

For use on Door #(s):

CB105.2 CB105.3

Provide each SL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR

REFERENCE NOTES ON DOOR SCHEDULE

Hardware Group No. 27 - PAIR, EXTERIOR, WOOD, 2 1/4", OUTSWING

For use on Door #(s):

CB101.1 CB105.1

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	TOP & BOTTOM OFFSET PIVOT SET	0195 3/4"	613	ABH
4	EA	INTERMEDIATE OFFSET PIVOT	019 3/4"	613	ABH
2	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	605	BES
2	EA	PANIC HARDWARE	9847WDC-L-17-SNB	710	VON
2	EA	SFIC RIM CYLINDER W/CONSTRUCTION CORE	12E74	613	BES
2	EA	CONCEALED OH STOP	N1020A SERIES	613	ABH
2	EA	SURFACE CLOSER	4040XP EDA WMS	695	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA SRT	695	LCN

REFERENCE NOTES ON DOOR SCHEDULE

Hardware Group No. 28 - SINGLE, FLUSH DOOR, OUTSWING

For use on Door #(s):

CB106.2

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	605	BES
1	EA	CONCEALED HINGE	TE340-3D	613	SIW
1	EA	CLASSROOM DEAD LOCK	L463HD	613	SCH
3	EA	SILENCER	SR64	GRY	IVE

REFERENCE NOTES ON DOOR SCHEDULE

Hardware Group No. 29 - SINGLE, STOREROOM, OUTSWING

For use on Door #(s):

CB107.1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	613	BES
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	613	IVE
1	EA	STOREROOM LOCK	L9080HD 17A	613	SCH
1	EA	CONCEALED OH STOP	N1020A SERIES	613	ABH
3	EA	SILENCER	SR65	GRY	IVE

REFERENCE NOTES ON DOOR SCHEDULE

Hardware Group No. 30 - SINGLE, PASSAGE, INSWING

For use on Door #(s):

CB106.1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	613	IVE
1	EA	PASSAGE SET	L9010 17A	613	SCH
1	EA	CONCEALED OH STOP	N1020A SERIES	613	ABH
1	EA	SURFACE CLOSER	1461 CUSH DS	695	LCN
3	EA	SILENCER	SR65	GRY	IVE

REFERENCE NOTES ON DOOR SCHEDULE

Hardware Group No. 31 - SINGLE, EXTERIOR, WOOD, 2 1/4", INSWING

For use on Door #(s):

PS102

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	613	BES
3	EA	HINGE	5BB1HW 5 X 4.5	613	IVE
1	EA	PASSAGE/DEADBOLT/THU MBTURN	L9473HD 42A L583-363	613	SCH
1	EA	CONCEALED OH STOP	N1020A SERIES	613	ABH
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ WMS	695	LCN
1	SET	GASKETING	475D-S	D	ZER
1	EA	DOOR BOTTOM	360AA-Z49	AA	ZER

REFERENCE NOTES ON THE DOOR SCHEDULE
WOOD THRESHOLD BY OTHERS

Hardware Group No. 32 - SINGLE, STOREROOM, INSWING

For use on Door #(s):

BC100C

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CYLINDER CORE	1C7 X VERIFY REQUIRED KEYWAY	605	BES
3	EA	HINGE	5BB1 4.5 X 4.5	613	IVE
1	EA	STOREROOM LOCK	L9080HD 17A	613	SCH
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ WMS	695	LCN
1	EA	FLOOR STOP	FS410	643E/71 6	IVE

REFERENCE NOTES ON DOOR SCHEDULE

MISCELLANEOUS

As req. Wiring Diagrams to suit
1 – Ea. Key Cabinet

TelKee Complete

END OF SECTION 087100

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SECTION 088000 - GLASS AND GLAZING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the glass and glazing as shown on the drawings and/or specified herein, including but not limited to glazing of the following:
 - 1. Windows.
 - 2. Doors.
 - 3. Sidelites.
 - 4. Insulated glass at doors and transoms at Carriage Barn exterior entrance systems.
 - 5. Interior mirrors, frameless.

1.3 RELATED SECTIONS

- A. Stile and Rail Wood Doors – Section 081433.
- B. Windows - Section 085200.
- C. Metal Framed Skylight – Section 086300.
- D. Glass Floor Panels – Section 096283.
- E. Framed mirrors - Section 102800.

1.4 REFERENCES

- A. Comply with the recommendations of the following references unless more stringent requirements are indicated herein.
 - 1. FGMA Publications: FGMA Glazing Manual.
 - 2. AAMA Publications: AAMA TIR-A7 Sloped Glazing Guidelines and Glass Design for Sloped Glazing.
 - 3. LSGA Publications: LSGA Design Guide.
 - 4. SIGMA Publications: TM-3000 Vertical Glazing Guidelines and TB-3001 Sloped Glazing Guidelines.

5. Safety Glass: Products complying with ANSI Z97.1 and testing requirements of 16 CFR Part 1201.
6. 16 CFR 1201, Safety Standards for Architectural Glazing, Sealed Insulating Glass Manufacturing Association.
7. ASTM C 920, Elastomeric Joint Sealant.
8. SAFETY ANSI Z97.1.
9. Fire Resistant ASTM E 152.

1.5 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thicknesses indicated on drawings and/or specified herein are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites for various size openings in nominal thicknesses indicated, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
 - a. Specified Design Wind Loads: ASCE-7 or greater if required by Code.
 2. Probability of Breakage for Vertical Glazing:
 - a. 8 lites per 1000 for lites set vertically or not more than 15 degrees off vertical and under wind action.
 - b. 1 lite per 1000 for lites installed 15 degrees from the vertical land and under wind action.
 - c. Load Duration: 60 seconds or less.
 3. Maximum Lateral Deflection: For glass supported on all four edges, provide thickness required that limits center deflection at design wind pressure to 1/100 times the short side length or 0.5", whichever is less.
- C. Glass units shall be annealed, heat strengthened, fully tempered or laminated where required to meet wind and/or snow loads and safety glazing requirements, as shown, specified or recommended by the glass fabricator and as required by the prevailing Building Code.

1.6 SUBMITTALS

- A. Product Data: Submit manufacturer's printed product data, specifications, standard details, glazing instructions, use limitations and recommendations for each material used. Provide

certifications that materials and systems comply with specified requirements, including performance requirements.

- B. Submit compatibility and adhesion test reports from sealant manufacturer indicating materials were tested for compatibility and adhesion with glazing sealant, as well as other glazing materials including insulation units.
- C. Initial Selection Samples: Submit samples of each glass and glazing material showing complete range of colors, textures, and finishes available for each material used.
 - 1. Submit complete range of samples of standard colors and patterns for ceramic frits at insulating glass.
 - 2. Submit complete range of samples of sandblasted glass showing variations of grits and opacity achieved.
- D. Verification Samples: Submit representative samples of each glass and glazing material that is to be exposed in completed work. Show full color ranges and finish variations expected. Provide glass samples having minimum size of 144 sq. in. and 6 in. long samples of sealants and glazing materials; all samples shall bear the name of the manufacturer, brand name, thickness, and quality.
- E. Calculations: Provide wind load charts, calculations, thermal stress analysis, and certification of performance of this work. Indicate how design requirements for loading and other performance criteria have been satisfied. Document shall be signed and sealed by a Professional Engineer licensed in the State of New York.
- F. Test Reports: Provide certified reports for specified tests.
- G. Warranties: Provide written warranties as specified herein.

1.7 QUALITY ASSURANCE

- A. Source: For each glass and glazing type required for work of this Section, provide primary materials which are products of one manufacturer. Provide secondary or accessory materials which are acceptable to manufacturers of primary materials.
- B. Installer: A firm with a minimum of five years experience in type of work required by this Section and which is acceptable to manufacturers of primary materials; and with a successful record of in-service installations similar in size and scope to this Project.
- C. Glass Thickness: Glass thicknesses shown on drawings and/or specified herein are minimum thicknesses. Determine and provide size and thickness of glass products that are certified to meet or exceed performance requirements specified in this Section.
- D. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated.
 - 1. GANA Publications: GANA'S "Glazing Manual" and "Laminated Glass Design Guide."
 - 2. IGMA Publications: IGMA TM-3000, "Vertical Glazing Guidelines for Sealed Insulating Glass Units."

- E. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201 and, for wired glass, ANSI Z97.1.
 - 1. Subject to compliance with requirements, obtain safety glazing products permanently marked with certification label of the Safety Glazing Certification Council.
 - 2. Where glazing units, including Kind FT glass and laminated glass, are specified in Part 2 articles for glazing lites more than 9 sq. ft. in exposed surface area of one side, provide glazing products that comply with Category II materials, for lites 9 sq. ft. or less in exposed surface area of one side, provide glazing products that comply with Category I or II materials, except for hazardous locations where Category II materials are required by 16 CFR 1201 and regulations of authorities having jurisdiction.
- F. Insulating Glass Certification Program: Permanently marked on spacers with appropriate certification label of the following testing and inspecting agency:
 - 1. Insulating Glass Certification Council.
 - 2. Associated Laboratories, Inc.
 - 3. Insulating Glass Manufacturers Alliance.
- G. Manufacturer shall be ISO 9001-2000 Certified.
- H. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

1.8 TESTS

- A. Preconstruction Sealant Test: Submit samples of materials to be used to glazing sealant manufacturer to determine sealant compatibility. Include samples of glass, gaskets, glazing materials, framing members, and other components and accessories of glazing work. Test in accordance with ASTM C 794 to verify what type of primers (if any) are required to ensure sealant adhesion to substrates.
 - 1. Submit minimum of nine pieces of each type and finish of framing member, and nine pieces of each type, class, kind, condition, and form of glass, including monolithic, laminated, and insulating glass for adhesion tests.
 - 2. Provide manufacturer's written report and recommendations regarding proper installation.

1.9 PROJECT CONDITIONS

- A. Weather: Perform work of this Section only when existing or forecasted weather conditions are within limits established by manufacturers of materials and products used.
- B. Temperature Limits: Install sealants only when temperatures are within limits recommended by sealant manufacturer, except, never install sealants when temperatures are below 40 deg. F.

1.10 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials and products in unopened, factory labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations and GANA Manual.
 - 1. Protect materials from moisture, sunlight, excess heat, sparks and flame.
 - 2. Sequence deliveries to avoid delays, but minimize on-site storage.

1.11 WARRANTIES

- A. General: Warranties shall be in addition to, and not a limitation of, other rights the Owner may have under the Contract Documents.
- B. Manufacturer's Special Project Warranty on Coated Glass Products: Provide written warranty signed by manufacturer of coated glass agreeing to furnish f.o.b. point of manufacture, within specified warranty period indicated below, replacements for those coated glass units which develop manufacturing defects. Manufacturing defects are defined as peeling, cracking or deterioration in metallic coating due to normal conditions and not due to handling or installation or cleaning practices contrary to glass manufacturer's published instructions.
 - 1. Warranty Period: Manufacturer's standard but not less than five (5) years after date of substantial completion.
- C. Manufacturer's Special Project Warranty on Laminated Glass: Manufacturer's standard form, made out to Owner and signed by laminated glass manufacturer agreeing to replace laminated glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
 - 1. Warranty period five (5) years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 GLASS MATERIALS AND PRODUCTS

- A. Clear Float Glass: ASTM C 1036, Type I (Transparent, Flat), Class 1 (Clear), Quality q3, minimum 1/4" thick.
 - 1. GL-1: Single-glazed, light character restoration (clear) glass. Match exiting adjacent at each window location (color, thickness & visual appearance).
- B. Clear Tempered Glass: ASTM C 1048, Condition A (Uncoated), Type I (Transparent, Flat), Class 1 (Clear), Quality q3, Kind FT, minimum 1/4" thick. Tempered glass must be certified by SGCC to meet applicable standards. Tempered glass shall also conform to the following:
 - 1. Length and Width: For 2.9 mm to 6.0 mm; +/-1.6 mm.
 - 2. Diagonal: +/- 3.0 mm.
 - 3. Edgework: Belt seaming or diamond wheels. 1.5 mm seam of upper and lower glass edges. No sharp edges.

4. Corners: No more than 3.0 mm from square.
 5. Float Glass Defects: Must meet the requirements of ASTM C 1036. The most common defects are scratches, stones gaseous bubbles and edge chips. Tables in the glass standards have limits for size/quantity of defects.
 6. Tempered glass shall have a minimum surface compression of 10,000 psi.
 7. Tempered glass to be heat-treated by horizontal (roller hearth) process with inherent roller-wave distortion parallel to the bottom edge of the glass when installed.
 8. Flatness Tolerances
 - a. Roller-Wave or Ripple: The deviation from flatness at any peak shall be targeted not exceed 0.003" as measured per peak to valley for 1/4" (6mm) thick glass.
 - b. Bow and Warp: The bow and warp tolerances shall not exceed 1/32" per linear foot.
 - c. Fully tempered glass shall be heat soaked to EN 14179-1:2005-European Heat Soaking Standard.
- C. Laminated Safety Glass: Provide two glass panes of equal thickness, laminated together with a polyvinyl butyl interlayer, conform to ASTM C 1172, and as follows:
1. Interlayer Color: Clear.
 2. Interlayer Material: Provide Sentry Glass Plus by Dupont, Kuraray America, 0.030" thick at vertical applications, and 0.060" thick at sloped or horizontal applications.
 3. Minimum thickness of 1/4".
- D. Low 'E' Coated Glass: Provide high-performance, clear, metallic coating, equal to LoE²-272, as manufactured by Cardinal Glass Industries or approved equal. Provide Low 'E' coating which has the following performance characteristics when applied to the No. 2 surface of 1" insulating units, both lites 1/4" clear:
1. Visible Transmittance: 72%.
 2. Visible Reflectance: 11%
 3. Winter U-value: 0.30
 4. Solar Heat Gain Coefficient (SHGC): 0.41
- E. GL-2: Insulating Glass: Insulated glass composition shall consist of 1/4" clear exterior lite of float (or tempered, where required) glass with Low E coating on No. 2 face, air space and 1/4" clear interior lite of float (or tempered, where required) glass. Provide factory assembled units of organically sealed panes of glass enclosing a hermetically sealed dehydrated air space, complying with ASTM E 2190, and as follows:
1. Sealing System: Dual Seal.
 2. Primary Sealant: Polyisobutylene.

3. Secondary Sealant: Silicone, General Electric IGS 3204 or IGS 3100, or Dow Corning 982.
 - a. For structurally glazed IG units, secondary seal shall conform to ASTM C 1249.
4. Primary and secondary seals shall not contain voids and must be continuously bonded to the glass structure.
5. Spacer: Clear finish aluminum with welded, soldered, or bent corners, hollow tube types, filled with low nitrogen absorption desiccant.
6. Desiccant: Molecular sieve, silica gel, or blend of both.
7. Air Space Thickness: 1/2".
8. Glass Thickness: 1/4" minimum.
9. Units shall be certified for compliance with seal classification "CBA" by the Insulating Glass Certification Council (IGCC) or by IGMA, and tested in accordance with the above ASTM Test Methods.
10. Insulating glass shall conform to the following tolerances:
 - a. Length and Width: + 3.0 mm/ -2.0 mm.
 - b. Diagonal: +/- 3.0 mm.
 - c. Thickness: As agreed +/- 1.0 mm.
 - d. Edge-Deletion of Coating: Minimum 8 mm wide. Width of deletion must be more than the width of the secondary seal. Silver layer(s) must be completely removed. Appearance must be uniform.
 - e. Primary PIB Seal: Must be complete with no breaks. Appearance must be uniform. PIB bead must overlap coating. No visible bright line when glass is viewed in transmission. The width of the PIB bead shall be 4.0 mm + 3.0/ - 1.5 mm.
 - f. Secondary Seal: Nominal 6 mm + 3.0/ - 1.5 mm. The minimum width of the secondary silicone seal for IG units that are glazed structurally must be determined according to ASTM C 1249. The secondary seal must be uniformly applied without bubbles, cavities or gaps. Avoid excess sealant that will need to be trimmed off later.
11. Additional requirements and properties for primary and secondary insulating glass seals and spacers:
 - a. All glass units shall comply with IGMA Guidelines which limits the dimension of the visible edge seal encroachment into the vision area to be no greater than the "sightline infringement of 3mm (0.12").
 - b. Insulating glass unit hermetic seal to consist of butyl primary and silicone secondary seals with bent, welded, or soldered interpane spacer corners; keyed corners are not acceptable unless also soldered or welded. Spacers shall be aluminum or stainless steel. Locate spacer joint at the top or sides of the units, but in no instances at the sill. Design units to minimize the number of spacer joints. Provide solid keys, embedded in butyl sealant on all four sides, at spacer joints.
 - c. Hermetic seals must be continuous and intimately bonded to both lites of glass. Provide primary seal of uniform depth with a nominal width of 1/8 to 3/16 in.

Hermetic seals shall not be contaminated with debris, fingerprints, or other foreign matter and shall not contain voids or air pockets that decrease the width of the seal below the minimum widths listed in these Specifications, or that breach the seal. The width of the primary seal shall not be less than 1/16 in., and the total cumulative length of the primary seal between 1/16 in. and 1/8 in. shall be less than 12 in. in any one insulating glass unit. The primary seal shall not have a reduced thickness at the corners. An increased thickness of the primary seal at the corners is acceptable.

- d. Provide secondary seal of uniform depth with a nominal width of 1/4 in. Provide a total width of the primary and secondary seal of 1/2 in. Units shall meet SIGMA 65-7-2, latest edition. Units shall not contain breather or capillary tubes or similar penetrations.

F. GL-3: Textured Privacy Glass. Match existing, as approved by the Architect.

- 1. Hollander; Hammered Premium Specialty Glass (PW 01H) or similar.

G. Frameless Mirrors: 1/4", Quality q2, clear float glass with silver, copper, and organic coating, and as follows:

- 1. Edges: Uniformly ground and polished.

2.2 GLAZING MATERIALS AND PRODUCTS

A. General: Provide sealants and gaskets with performance characteristics suitable for applications indicated. Ensure compatibility of glazing sealants with insulating glass sealants, with laminated glass interlayers, and with any other surfaces in contact.

B. General Glazing and Cap Bead Sealant: Provide sealant with maximum Shore A hardness of 50. Provide one of the following:

- 1. Dow Corning 795.
- 2. General Electric Silglaze N 2500 or Contractors SCS-1000.
- 3. Tremco Spectrem 2.

C. Weather Seal Sealant: Provide non-acid curing sealant with movement range $\pm 50\%$, ASTM C 719. Provide one of the following:

- 1. Dow Corning 795.
- 2. General Electric Silpruf.
- 3. Tremco Spectrem 2.

D. Backer Rod: Closed cell non-gassing polyethylene rod with rod diameter 25% wider than joint width.

E. Dense Elastomeric Compression Seal Gaskets: Provide molded or extruded neoprene or EPDM gaskets, Shore A hardness of 75 ± 5 for hollow profile, and 60 ± 5 for solid profiles, ASTM C 864.

- F. Cellular, Elastomeric Preformed Gaskets: Provide extruded or molded closed cell, integral-skinned neoprene, Shore A 40 $\pm$ 5, and 20% to 35% compression, ASTM C 509; Type II.
- G. Preformed Glazing Tape: Provide solvent-free butyl-polyisobutylene rubber with 100% solids content complying with ASTM C1281 AAMA A 800 with integral continuous EPDM shim. Provide preformed glazing tape in extruded tape form. Provide Tremco "Polyshim II" or approved equal.
- H. Setting Blocks: Provide 100% or silicone blocks with Shore A hardness of 80-90. Provide products certified by manufacturer to be compatible with silicone sealants. Length to be not less than 4". Width for setting blocks to be 1/16" more than glass thickness and high enough to provide the lite recommended by glass manufacturer. When thickness of setting block exceeds 3/4" the glass manufacturer must be consulted for sizes and configuration. In a vented system, setting block shall be designed so as to not restrict the flow of water within the glazing rabbet to the weep holes.
 - 1. Shims: For shims used with setting blocks, provide same materials, hardness, length and width as setting blocks.
 - 2. Structural Silicone Glazing: Provide silicone setting blocks where structural silicone occurs at sills and at insulating units with silicone edge seals.
- I. Edge Blocks: Provide neoprene or silicone as required for compatibility with glazing sealants. Provide blocks with Shore A hardness of 55 $\pm$ 5.
- J. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place.
- K. Miscellaneous Glazing Materials: Provide sealant backer rods, primers, cleaners, and sealers of type recommended by glass and sealant manufacturers.
- L. Solar Control Window Film: Provide 3M Sun Control Window Film "LE 70" or approved equal meeting the minimum performance characteristics of the basis of design product.
- M. Mirror Adhesive: Palmer's "Mirro-Mastic", or approved equal; mastic must be compatible with mirror backing.
 - 1. Clips: No. 4 finish Type 304 stainless steel.

2.3 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with indoor and outdoor faces.
- C. Grind smooth and polish exposed glass edges.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine framing glazing, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - 2. Presence and functioning of weep system.
 - 3. Minimum required face or edge clearances.
 - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

3.3 GENERAL GLAZING STANDARDS

- A. Install products using the recommendations from the manufacturer of glass, sealants, gaskets and other glazing materials, except where more stringent requirements are indicated, including those in the "GANA Glazing Manual".
- B. Install glass in prepared glazing channels and other framing members.
- C. Install setting blocks in rabbets as recommended by referenced glazing standards in GANA Glazing Manual" and "IGMA Glazing Guidelines".
- D. Provide bite on glass, minimum edge and face clearances and glazing material tolerances recommended by "GANA Glazing Manual".
- E. Provide weep system as recommended by "GANA Glazing Manual".
- F. Set glass lites in each series with uniform pattern, draw, bow and similar characteristics.
- G. Distribute the weight of glass unit along the edge rather than the corner.
- H. Comply with manufacturers and referenced industry standards on expansion joint and anchors; accommodating thermal movement; glass openings; use of setting blocks, edge, face, and bite clearances; use of glass spacers; edge blocks and installation of weep systems.
- I. Protect glass edge damage during handling and installation.
- J. Prevent glass from contact with contaminating substances that result from construction operations, such as weld spatter, fireproofing or plaster.
- K. Remove and replace glass that is broken, chipped cracked or damaged in any way.

3.4 GLAZING

- A. Glazing channel dimensions, as indicated on Shop Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead. Install setting blocks at the one greater points of each lite along the horizontal mullion.
- E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- F. Provide spacers for glass lites where the length plus width is larger than 50 inches as follows:
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- I. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- J. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.
- K. Flush Glazing
 - 1. If the butt joint in the metal framing is in the vertical direction, the glazier shall run the tape initially on the head and sill members going directly over this joint. Should the butt joint in the metal framing run horizontally, tapes must first be applied to the jambs so that it crosses over the joint.

2. Each tape section shall butt the adjoining tape and be united with a tool to eliminate any opening.
3. Do not overlap the adjoining length of tape or rubber shim as this will prevent full contact around the perimeter of glass.

L. Off-Set Glazing

1. Where the glazing legs are off-set, the difference in the rabbet width shall be compensated by employing different glazing tapes with different diameter shims. The difference in shim shall be equal to the size of the off-set. The thinner tape shall be positioned first on the glazing leg closest to the interior. The thicker tape shall be cut to the exact length of the dimension between the applied tapes, and installed on the outermost glazing leg.
2. Immediately prior to setting glass, paper backing shall be removed. Apply a toe bead of sealant 6" in each direction, from each corner.
3. Locate setting blocks in the sill member at quarter points, or if necessary to within 6" of each corner. Setting blocks must be set equal distance from center line of the glass and high enough to provide the recommended bite and edge clearances.
4. Set edge block according to glass manufacturer's recommendations.
5. Set Glass: The glass shall be pressed firmly against the tape to achieve full contact.
6. In a vented system, apply a heel bead (air seal) of sealant around the perimeter of glass, between the sole of the I.G. unit and the base of the rabbet of the metal framing developing a positive bond to the unit and to the metal framing. The bead of the sealant shall be deep enough so that it will partially fill the channel to a depth of 1/4" between the glass edge and the base of the metal framing rabbet.
7. Interior stops shall be set, and glazing tape spline for the appropriate face clearance shall be rolled into place, compressing the glass to the shim within the glazing tape.

3.5 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Where framing joints are vertical, cover these joints by applying tapes to heads and sills first and then to jambs. Where framing joints are horizontal, cover these joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until just before each glazing unit is installed.

- F. Apply heel bead of elastomeric sealant as recommended by glass manufacturer or glass frame manufacturer.
- G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape where noted on approved shop drawings.

3.6 GASKET GLAZING (DRY)

- A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with stretch allowance during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Install gaskets so they protrude past face of glazing stops.

3.7 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
 - 1. Exterior glazing gasket shall be set a minimum of 1/8" below exterior glazing stop to create a channel for sealant installation.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.8 INSTALLATION OF WINDOW FILM

- A. Install in accordance with manufacturer's instructions.
 - 1. Film shall be installed intact and be removable in the future without damage to the glass.
 - 2. Film shall be installed either in the factory, with protection for it during shipping and installation, or right before erecting window units in the field.
- B. Cut film edges neatly and square at a uniform distance of 1/8 inch (3 mm) to 1/16 inch (1.5 mm) of window sealant. Use new blade tips after 3 to 4 cuts.

- C. Spray the slip solution, composed of one capful of baby shampoo or dishwashing liquid to 1 gallon of water, on window glass and adhesive to facilitate proper positioning of film.
- D. Apply film to glass and lightly spray film with slip solution.
- E. Squeegee from top to bottom of window. Spray slip solution to film and squeegee a second time.
- F. Bump film edge with lint-free towel wrapped around edge of a 5-way tool.
- G. Upon completion of film application, allow 30 days for moisture from film installation to dry thoroughly, and to allow film to dry flat with no moisture dimples when viewed under normal viewing conditions.

3.9 FRAMELESS MIRRORS

- A. Apply mastic to back of mirror "pats" spaced 4 pats/sq. ft.; adjust mirror so that it is plumb and in place to avoid distortion of reflecting images. Allow 1/8" space between back of mirror and wall surface.
 - 1. Apply "pats" using Palmer Electric Applicator.
- B. Apply stainless steel clips at mirror top and bottom; securely clip to substrate using non-corrosive anchors. At drywall back-up anchors must be secured to studs or steel wallplate spanning from stud to stud.

3.10 PROTECTION AND CLEANING

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scum, alkaline deposits, or stains; remove as recommended by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents, and vandalism, during construction period.
- E. Clean excess sealant or compound from glass and framing members immediately after application, using solvents or cleaners recommended by manufacturers.
- F. Glass to be cleaned according to:
 - 1. GANA Glass Information Bulletin GANA 01-0300 – "Proper Procedure for Cleaning Architectural Glass Products".

2. GANA Glass Informational Bulletin GANA TD-02-0402 – “Heat Treated Glass Surfaces are Different”.

G. Do not use razor blades, scrapers or metal tools to clean glass.

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SECTION 090120 – RESTORATION TREATMENT OF HISTORIC PLASTER AND STUCCO

PART 1 GENERAL

1.1 DESCRIPTION

- A. John Jay Homestead is a National Historic Landmark, on the National Register of Historic Places and in the New York State Register of Historic Places.
- B. The historical and architectural significance of the site and its buildings require particular care when intervening with existing fabric to ensure restoration work and the construction of new interventions are of appropriate quality and undertaken with appropriate care for the historic fabric.
- C. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents, including but not limited to General and Supplementary Conditions and Division 01 Specifications Sections.

1.2 SECTION INCLUDES

- A. General:
 - 1. The Contractor shall provide all labor, materials, equipment and services required to complete the work as shown on drawings, as described in this section, and as may be required by conditions and authorities.
 - 2. Plaster and Stucco Restoration Contractor to provide all selective removals and dismantling of existing historic plaster and stucco elements included in this scope of work (e.g. cuts, perforations, trenching, etc.) as needed for installation of new devices, lighting, etc. by others. Provide all needed repairs at historic plaster and stucco elements after new installations are complete. Subject to review and acceptance by Client, Preservation Architect, and Construction Manager. General Contractor to coordinate the work of all relevant trades.
 - 3. Prior to starting the work - Contractor shall survey all areas where existing plaster and stucco is shown to remain, in order to verify extent and locations of needed repairs, and confirm estimated quantities shown on the drawings. Results of the Contractor's survey shall be clearly communicated to Client, Architect and Construction Manager and form part of the Plaster and Stucco Restoration Quality Control Plan.
- B. Work of this Section includes all labor, materials, equipment, and services necessary to complete the plaster patching work for existing plaster surfaces scheduled to remain and as specified herein, including, but not limited to, the following:
 - 1. Cutting out and removing existing interior plaster surfaces where needed to repair existing gypsum plaster.
 - 2. Cutting out and removing existing plaster on walls and ceilings as required for installation of new work.
 - 3. Repair and patching cracks, spalls, delaminations, breaks, losses, chips, holes or other defects in gypsum plaster surfaces.

4. Repair of existing ornamental moldings, including making molds of existing designs for replication elsewhere as indicated.
5. Providing plaster accessories and associated Work.
6. Providing new plaster to align with existing plaster at existing walls and ceilings.

1.3 RELATED SECTIONS

- A. Historical Treatment Procedures – Section **013591**
- B.** Removal and Salvage of Historic Construction Materials – Section **020342**
- C. Restoration Treatments for Historic Masonry – Section **040300**
- D. Restoration Treatments for Historic Metals – Section **050300**
- E. Restoration Treatment for Historic Woodwork – Section **060312**
- F. Restoration Treatment for Period Openings – Section **080300**
- G. Restoration Treatment for Historic Plaster – Section **090120**
- H. Painting and Finishing – Section **099000**

1.4 REFERENCES

- A. All work shall conform to ASTM-C842: Standard Specification for Application of Interior Gypsum Plaster
- B. ASTM C28 - Standard Specification for Gypsum Plasters, Most Current Edition
- C. ASTM C35 - Standard Specification for Inorganic Aggregates for Use in Gypsum Plaster, Most Current Edition
- D. ASTM C206 – Standard Specification for Finishing Hydrated Lime, Most Current Edition
- E. ASTM C631 - Standard Specification for Bonding Compounds for Interior Plastering, Most Current Edition
- F. ASTM C841 - Standard Specification for Installation of Interior Lathing and Furring, Most Current Edition
- G. ASTM C847 - Standard Specification for Metal Lath, Most Current Edition
- H. “Repairing Historic Flat Plaster Walls and Ceilings,” Preservation Brief #21, Preservation Assistance Division, National Parks Service, 1989.
- I. “Preserving Historic Ornamental Plaster,” Preservation Brief #23, Preservation Assistance Division, National Parks Service, 1990.
- J. The Secretary of the Interior’s Standards. All work shall comply with the United States Secretary of the Interior’s Standards for Rehabilitation and Guidelines for Rehabilitation of Historic Properties, unless indicated otherwise.

1.5 QUALITY ASSURANCE

- A. Historic Treatment Specialist Qualifications: A firm or company specializing in historic plaster and stucco restoration with minimum ten (10) years of documented experience. Qualified companies must present examples of completed work on at least five (5) projects similar in material, design, and extent to that indicated for this Project, whose work has resulted in historic treatment of historic plaster and stucco with a record of successful in-service performance. A firm or individual experienced in installing and finishing new decorative plaster and stucco work is insufficient experience for historic plaster and stucco treatment work.
1. The Contractor shall hold and provide evidence of current RRP certification of Trained & Certified EPA Lead Renovator and previous experience in removal of lead-based paint from exterior and interior plaster surfaces.
 2. Field Supervision:
 - a. The Contractor shall maintain a full-time foreman/supervisor who shall be present on site or in the shop daily at all times that historic treatment of historic plaster and stucco is in progress.
 - b. The Contractor shall maintain a steady work crew consisting of skilled craftsmen who are experienced with the materials and methods specified and familiar with the design requirements.
 - 1). Plaster and stucco repairs shall be executed by skilled persons thoroughly trained and familiar with the methods required.
 - 2). The Contractor shall confirm that all workers under their direction fully understand the requirements of the job.
 - c. Contractor shall notify Architect before beginning work. Obtain the Architect's approval of the installation of restored plaster and stucco before proceeding with the work.
- B. Bidders must visit the site beforehand and make themselves thoroughly familiar with specific conditions relating to this Section.
- C. All painting and paint removal work shall be done by a Trained and Certified EPA Lead Renovator holding an active RRP Certification.
- D. Plaster and Stucco Restoration Quality Control Plan: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of the historic treatment work, including protection of surrounding materials, required curing times for all plaster and stucco work, and Project site.
- E. Pre-mockup Testing: Prior to providing mockups, the Historic Treatment Specialist shall perform small scale testing in the field to determine existing substrate, cleaning methods and refinishing methods on representative plaster and stucco elements of each type for compliance with specified requirements and as directed by Architect.
1. Locate test areas in an inconspicuous location or as directed by Architect.
 2. Size of test areas shall be approximately 6"x6" or as needed to demonstrate expected results from each product being tested.
 3. Notify Architect seven days in advance of the dates and times when testing will be performed.

4. Provide proposed materials and methods for approval prior to testing
- F. Conform to the following standards:
1. ASTM C 841 - Standard Specification For Installation of Interior Lathing And Furring.
 2. ASTM C 842 - Standard Specification For Application of Interior Gypsum Plaster.
 3. ASTM C 847 - Standard Specification For Metal Lath.
 4. ASTM C 28 - Standard Specification For Gypsum Plasters.
 5. ASTM C 631-81 - Standard Specification For Bonding Compounds For Interior Plastering.
 6. ASTM C 35 - Standard Specification For Inorganic Aggregates For Use In Gypsum Plaster.
 7. ASTM C 206 - Standard Specification For Finishing Hydrated Lime.
- G. Allowable Tolerances: All plaster repairs shall be keyed and feathered to exactly match and continue edges and contours of existing plaster work. Repairs shall be true and flat in connections with adjacent surfaces when checked with an 8 ft. straight edge; do not exceed 1/8-inch variation in 8 ft. for bow, warp, plumb, or level for flat and curved surfaces.
- H. Defects
1. Plastering with defects of such character as will mar the appearance of finished Work, or which is otherwise defective, shall be rejected, removed and replaced at the Contractor's expense.
 2. All ridges, ledges and visual irregularities shall be rejected, removed, and plaster replaced at the Contractor's expense.
 3. Any defects or irregularities of plaster restoration work telegraphing through paint shall be cause for rejection of the Work. The Contractor shall remove any subsequent work, remove and replace the defective or irregular plaster restoration work and have the subsequent work replaced by skilled workman in the appropriate trades, to the satisfaction of the Architect, at the Contractor's expense.

1.6 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference on historic plaster and stucco repair and repointing at Project site prior to starting the work.
1. Review methods and procedures related to repairing historic plaster and stucco, including, but not limited to, the following:
 - a. Historic treatment specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Materials, material application, sequencing, tolerances, and required clearances.
 - c. Conditions survey method and list of conditions to be surveyed.
 - d. Quality-control program.
 - e. Fire-protection plan.
 - f. Plaster and Stucco Restoration Quality Control Plan

g. Coordination with building occupants.

1.7 INFORMATIONAL SUBMITTALS

- A. Contractor Qualification Data: Submit qualification data and references for firms and persons specified in Section 014300 Quality Assurance to demonstrate their capabilities and experience. Bidders shall visit the site and make themselves familiar with the site conditions. .
- B. Efflorescence removal testing program prepared by materials conservator.

1.8 SUBMITTALS

- A. Materials List: Before any materials are delivered to the job site, submit a complete list of all the materials proposed to be furnished and installed.
- B. Product Data: Submit manufacturer's product data for plaster materials, lath, metal support components, and accessories; including manufacturer's current recommendations as to methods and installation.
- C. Provide list of similar scale and project type completed in the last five (5) years.
- D. Plaster and Stucco Restoration Program: Prepare a written plan for restoration of plaster, including each phase or process, protection of surrounding materials during operations, and control of spills during on-site repair and other processes. Describe, in detail, materials, methods, curing times that require protection, and equipment to be used for each phase of the work. Show compliance with indicated methods and procedures related to restoration of plaster specified in this section.
- E. Mock-ups: Before starting plaster work, prepare a sample application for each type of finish and application required to demonstrate aesthetic effects of application and qualities of materials and execution.
 - 1. Locate mockups on site in locations as directed by Architect.
 - 2. Erect a 4-foot by 4-foot (minimum) by full thickness mockup using materials, including lath, indicated for final work for each type of plaster repair.
 - 3. Demonstrate the proposed range of aesthetic effects including texture and workmanship to be expected in completed work.
 - 4. Demonstrate that adhesion to existing surface will be achieved where skim coat over plaster is indicated.
 - 5. Demonstrate that coverage of existing surface defects and conditions will be achieved where skim coat over plaster is indicated.
 - 6. Simulate finished lighting conditions for review of mockups.
 - 7. Obtain Architect's acceptance of mockups before start of plaster work.
 - 8. Retain and maintain mockups during construction in undisturbed condition as a standard for judging completed plaster work.

9. Approved mockups may become part of the complete work if undisturbed at time of substantial completion of work.

1.9 DELIVERY, STORAGE AND HANDLING

- A. All materials for use in the work of this Section shall be stored under environmental conditions recommended by the manufacturer. Materials are to be kept dry, well-ventilated and free of foreign matter. Store materials on elevated platforms, under cover, and in a dry location with ambient temperatures continuously maintained at not less than 45 deg F.
- B. Arrangements shall be made with the Owner to store equipment and materials in designated areas. The Owner shall not be responsible for damaged or stolen materials or equipment left on the premises by the Contractor.
- C. All vessels shall have tight fitting covers. At no time shall vessels containing chemicals be carried to working levels when vessels are open.
- D. Transport, lift and handle new plaster units with care, avoiding excessing stress and preventing damage; use appropriate equipment and methods.
- E. Store hydrated lime and factory-prepared lime putty in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.
- F. Store materials not in use in tightly covered containers.
- G. Store lime putty covered with water in sealed containers.
- H. Store sand where grading and other required characteristics can be maintained and contamination avoided.
- I. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer.
- J. Store materials inside, under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes. Neatly stack gypsum lath flat to prevent deformation.
- K. Handle gypsum lath to prevent damage to edges, ends or surfaces. Protect metal corner beads and trim from being bent or damaged.

1.10 PROJECT CONDITIONS

- A. Environmental Requirements, General: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after application of plaster.
- B. Ventilation: Ventilate building spaces in compliance with ASTM C 842 and as required to remove water in excess of that required for hydration of plaster. Begin ventilation immediately after plaster is applied and continue until it sets.
- C. Protection:

1. Protect all adjacent areas from damage during the work of this Section using approved means of physical protection.
2. Protect all adjacent surfaces and projections from all dropping materials. Use canvas or polyethylene covers if necessary and remove all unwanted material that comes in contact with any historic material immediately so as to not cause staining.
3. Restoration of existing plaster shall be done in such manner as not to cause damage to contiguous work.

PART 2 PRODUCTS

2.1 GENERAL

- A. Grade and Quality: Materials shall conform to the requirements of this Section and shall be new, free from defects, and of recent manufacture.
- B. Where any manufacturer makes more than one grade of each material specified, use highest grade and quality of each material, whether or not materials is mentioned by trade name in these specifications.
- C. Where products specified by name and number are not available, furnish products equal to original specifications, as approved by the Architect, at no additional cost to the Owner.
- D. Manufacturers Instructions: comply with material manufacturer's instructions for use of products (including surface preparation, mixing, applying, drying, etc). In case of conflict with the requirements of this Section, the more stringent requirements shall govern.
- E. ASTM Standards: all products shall comply with relevant ASTM standards.

2.2 MATERIALS

- A. Gypsum Plaster System: Provide gypsum plaster with vermiculite aggregate as manufactured by United States Gypsum Company, or approved equal.
 1. Materials
 - a. Aggregate: Vermiculite, premixed with plaster.
 - b. Water: Clean, fresh, potable, and free from injurious amounts of oils, acids, alkalis and organic matter injurious to the plaster.
 - c. Gypsum plaster shall conform to the requirements of ASTM C 28, latest edition.
 - d. Finishing Coat: Two (2) coat application to a total thickness of 1/8" consisting of Imperial Base Coat plaster and Diamond Finish plaster or approved equivalent finishing coat with a short drying time to permit painting work soon after completion.
 - e. Bonding Agent: For bonding new plaster to existing plaster, provide "Plaster-Weld" as manufactured by Larsen products, or approved equal.
- B. Base-coat stucco/cement plaster: Provide new stucco to match existing. New stucco to comply with requirements in ASTM C926 for applications indicated.
 1. Materials:
 - a. Fiber Content: Add fiber to base-coat mixes after ingredients have been mixed for at least two minutes. Comply with fiber manufacturer's written instructions for fiber quantities in mixes, but do not exceed 1 lb of fiber/cu. yd. of cementitious materials.

- b. Aggregate:
 - 1). Sand: Use unless otherwise indicated.
 - 2. Application over Solid Base: single base (scratch) coat for two-coat plasterwork as follows:
 - a. High-Absorption Unit Masonry and Concrete Substrates:
 - 1). Portland Cement Mix: For cementitious material, mix 1-part portland cement and $\frac{3}{4}$ to 1-1/2 parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material.
 - C. Finish coat stucco/cement plaster: Provide new stucco to match existing. New stucco to comply with requirements in ASTM C926
 - 1. Materials:
 - a. Aggregate:
 - 1). Sand: Use over base coats containing sand.
 - b. Portland Cement Mix: For cementitious material, mix 1-part portland cement and $\frac{3}{4}$ to 1-1/2 parts lime. Use 1-1/2 to 3 parts aggregate per part of cementitious material.
 - 2. Ready-Mixed Finish-Coat stucco/cement plaster: Factory-mixed portland cement, aggregates, coloring agents and proprietary ingredients.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1). California Stucco Products Corp.
 - 2). El Rey Stucco Solutions; a Parex USA, Inc. brand
 - 3). Florida Stucco
 - 4). Omega Products International
 - 5). Quickrete; The QUICKRETE Companies, LLC
 - b. Color: Custom color to match existing.
 - c. Source Limitations: Obtain ready-mixed finish-coat stucco/cement plaster from single source from single manufacturer.
 - D. Plaster Crack Patching Compound: Provide “Sheetrock All Purpose Joint Compound Ready Mixed” as manufactured by US Gypsum Co, or approved equal made by DAP. Apply per manufacturer’s recommendations.
 - E. Metal Accessories: Grounds and casing corner beads shall be zinc-coated sheet steel, 26 ga. or heavier, with expanded or perforated flanges or clips so shaped and fabricated as to permit complete embedment in the plaster.
 - F. Expanded-Metal Lath: ASTM C 847, cold-rolled carbon-steel sheet with ASTM A 653, G60, hot-dip galvanized-zinc coating.
 - 1. Paper Backing: Kraft paper factory bonded to back of lath.
 - 2. Diamond-Mesh Lath: Self-furring, No. 24 gauge, 3/8" diamond mesh expanded steel.
 - 3. Lath Hangers: 6 SWG galvanized steel.
- 2.3 PAINT STRIPPERS FOR CALCIMINE PAINT:
 - A. Recommended products for Pre-mockup Testing include, but may not be limited to:
 - 1. Citristrip Stripping Gel, as manufactured by W.M. Barr. 2105 Channel Avenue Memphis, TN 38113 (901) 775-0100.

2. Or approved equal.

2.4 MIXING OF PLASTER

- A. Mix and apply plaster in accordance with the directions of the manufacturer.
- B. Texture of finishing coat shall match existing plaster.
- C. Mixes shall match exg as required so plaster restoration work is compatible with existing plaster surfaces to remain.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where plaster work is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected by the Contractor in a manner acceptable to the Architect.
- B. Historic Treatment Appearance Standard: Completed work is to have a uniform appearance as viewed by the Architect and Owner from building interior at five (5) feet away from surface.

3.2 GENERAL

- A. Sequence plaster installation properly with the installation and protection of other work, so that neither will be damaged by the installation of other work.
- B. Cut out and replace all unbonded spots. Build in the work in others and do all cutting and patching of plaster in this connection. Where abutting other built-in materials, plaster shall be finished tightly against them and neatly trimmed, unless otherwise indicated.
- C. Plaster thicknesses indicated shall be considered as a minimum; plaster shall be of such thickness required to plumb and square wall surfaces so that plaster is flush with adjacent surfaces.
- D. Replicate, repair and restore flat wall plaster as indicated.
- E. Plaster repairs shall be executed edge to edge in long strips or large areas for each separate coat. Where breaks are necessary lap new work over adjoining work.
- F. Bring finished surfaces of plaster to true planes. When complete surface shall be clean, free from blisters, pits, discoloration, cracks or other defects. In all cases the plastering throughout is to be delivered clean and perfect in every respect.

3.3 PREPARATION

- A. Inspect all surfaces to be plastered before beginning Work and correct all defects which will affect the proper execution of this Work.
- B. Carefully remove all soft, broken, loose or flaking plaster back to substrate and to solid adjacent plastering, making clean and sharp edges; cut back the existing plaster at an angle so that the patching will key properly and blend in with the existing surfaces at both sides of the crack. Where necessary, partially remove existing metal lath, leaving enough lath exposed to tie to

new lath. Sweep masonry and lath clean and dampen immediately prior to replastering. Keys in masonry and metal lath substrates shall be cleaned of all existing plaster. Masonry substrates shall be prewetted to prevent excessive suction and too rapid drying. Join new work and make flush with contiguous work.

- C. Cracks: Hairline cracks, random cracking and checking shall be repaired using plaster crack patching compound specified herein.
- D. Bonding compound shall be applied to all plaster, concrete and masonry surfaces for all plaster repairs. Application shall be in strict accordance with manufacturer's written recommendations and first and brown coats shall be applied directly over bonding compound.
- E. All preparation shall be done with compatible materials and methods that will not compromise the integrity of the plasters, and will not telegraph through finished surfaces.

3.4 PATCHING AND REPAIRING EXISTING PLASTER WITH NEW PLASTER

A. Preparation

- 1. Remove all soft, broken, loose, delaminated, non-adhering, or flaking plaster back to masonry or lath and to solid, sound adjacent plaster, making clean and sharp edges, beveled inward toward substrate to provide mechanical key. Ensure that remaining plaster is completely bonded to substrate. Remove deteriorated wood lath. Brush and vacuum masonry and lath on which new plaster is to be applied clean and free of all existing plaster and other contaminants.
- 2. Provide new metal lath and supporting elements as required to provide secure, sound substrate.
- 3. Dampen masonry 24 hours prior to replastering, and dampen again immediately prior to replastering to prevent excessive suction and too rapid drying, unless specifically recommended otherwise by bonding agent manufacturer.
- 4. Install new metal lath in all locations where lath is missing and where damaged or deteriorated lath has been removed using stainless steel staples and tie wires. Attach metal lath to existing wood lath.

B. Bonding Agent: Apply bonding compound on plaster and masonry surfaces in strict accordance with manufacturer's recommendations.

C. Gypsum Plaster on Metal Lath: Provide three-coat plaster (scratch, brown, and finish coats) having a total thickness not less than 5/8 inch. At fire rated conditions thickness as required to achieve rating.

- 1. Scratch Coats: Apply with sufficient material and pressure to form full bond with solid base materials. Scratch the surface to form a bond for the brown coat.
- 2. Brown Coats: Do not apply brown coat until after the scratch coat has hardened, and not less than 24 hours after application of the scratch coat. All joints in brown coat plaster shall be lap joints. After drying, all shrinkage cracks shall be cut out and filled with scratch coat plaster.

3. Mix scratch and brown coats shall be mixed in the proportions of 100 lbs. gypsum neat plaster to 2-1/2 cu. ft. of sand. Scratch and brown coats of fibered gypsum plaster shall be mixed in the proportions of 100 lbs. fibered gypsum plaster to one cu. ft. of sand.
 4. Finish Coats: Gypsum gauging plaster finish. Mix in the proportion of one part calcined gypsum, to 3 parts of lime putty by volume. Apply bonding compound to existing base coat and then apply finish coat over base coat of gypsum plaster. The finish shall be allowed to draw a few minutes and then shall be well troweled with water to a smooth finish, free from blemishes. The thickness of finish coat shall be from 1/16" to 1/8" and total thickness of gypsum plaster shall be as indicated but no less than 5/8".
- D. Gypsum Plaster Finish Coat on Existing Base Coats: Apply bonding agent to existing base coat following manufacturer's directions and then apply finish coat as specified above.

3.5 PATCHING AND REPAIRING EXISTING STUCCO WITH NEW STUCCO

- A. Remove all soft, broken, loose, delaminated, non-adhering, or flaking stucco back to masonry to solid, sound adjacent stucco, making clean and sharp edges, beveled inward toward substrate to provide mechanical key. Ensure that remaining stucco is completely bonded to substrate. Brush and vacuum masonry on which new stucco is to be applied clean and free of all existing stucco and other contaminants.
- B. General: Comply with ASTM C926
1. Bonding Compound: Apply on unit masonry substrate for direct application of stucco.
- C. Application of Base-Coat Stucco/Cement Plaster:
1. Install base-coat stucco so that finished stucco surfaces will not deviate more than plus or minus ¼ inch in 10 ft. from a true plane when measured by a 10-ft. straightedge placed on surface.
 2. Install so finished stucco surfaces will be flush with frames and other built-in items or accessories that act as a stucco ground unless otherwise indicated. Where casing bead does not terminate plaster at metal frame, cut base coat free from metal frame before plaster sets.
- D. Wall/Vertical Base Coats:
1. Two-Coat Stucco Plasterwork Over Solid Plaster Bases: Install base-coat mix for use over solid plaster bases in 3/8-inch thickness on masonry.
- E. Ceiling/Horizontal Base Coats:
1. Two-Coat Stucco Plasterwork over Solid Plaster Bases: Install base-coat mix for use over solid plaster bases and ¼-inch thickness on concrete.
- F. Application of Finish-Coat Stucco/Cement Plaster:
1. Surface of new stucco areas to match existing adjacent stucco.
 2. Do not deviate more than plus or minus ¼ inch in 10 ft. from a true plane in finished stucco surfaces when measured by a 10-ft straightedge placed on surface.

3. Finish stucco flush with frames and other built-in items or accessories that act as a stucco ground unless otherwise indicated. Where casing bead does not terminate stucco at metal frame, groove finish coat at junctures with metal.
4. Provide finish stucco surfaces that are ready to receive field-applied finishes indicated.

3.6 PATCHING CRACKS IN PLASTER

- A. General: Repair cracks as indicated on Drawings. Repair all cracks greater than 1/32-inch wide and all cracks that are clearly visible. Repair multiple hairline cracks, random cracking, and checking if combined effects in any way compromise plaster integrity. Architect will make final determination in questionable cases.
- B. Preparation: Cut out crack to a minimum of 1/8-inch wide. Splay sides of crack outward towards the substrate to provide a slight dovetail. Brush crack clean of dust and dirt.
- C. Bonding Compound: Apply bonding compound to all crack surfaces.
- D. Filling: Fill crack with plaster patching compound. Repeat as necessary to provide surface matching plane of adjacent plaster surface.
- E. Finished Surface: Surface shall show no signs of crack or crack repair after finish has been applied. Cut out work that does not meet requirements of these specifications and repeat patching to Architect's satisfaction.

3.7 PAINT REMOVAL:

- A. Protect all adjacent areas and materials.
- B. Apply approved paint remover following all manufacturer's recommendations.
- C. Prepare stripped plaster surface as required to receive scheduled finish.

3.8 FINISHING

- A. Cut, patch, point-up and repair plaster as necessary to restore shrinkage cracks, dents and imperfections. Repair or replace work to eliminate blisters, buckles, excessive crazing and check cracking, dry-outs, efflorescence, sweat-outs and similar defects, and where bond to the substrate has failed. Patched surfaces in existing plaster surfaces shall be imperceptible.
- B. Sand smooth-troweled finishes lightly to remove trowel marks and arrises.
- C. Remove temporary protection and enclosure of other work. Remove plaster from other surfaces which are not to be plastered. Repair floors, walls and other surfaces which have been stained, marred or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers and equipment and clean floors of plaster debris.
- D. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures plaster work being without damage or deterioration at time of substantial completion.

END OF SECTION 090120

SECTION 090160 – RESTORATION, REUSE, AND REFINISHING OF WOOD PLANK
AND STRIP FLOORING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete mock-ups and the wood flooring restoration, as shown on the drawings, schedules, and/or specified herein, including but not limited to, the following:
 - 1. Treatments of existing wood flooring as indicated on the drawings and required in the field.
 - a. Stabilize all existing loose or misaligned flooring. Resecure to match existing types.
 - b. Remove damaged or filler panel sections and provide replacement to match existing adjacent material.
 - c. Remove all debris from joints between boards including plaster or caulk fillers.
 - d. Areas where crack exceeds 5/8" wide provide matching wood filler secured to existing wood system.
 - e. Patch areas of existing wood floor to accommodate alterations, using matching salvaged wood from existing floor wherever possible.
 - f. Use of reclaimed wood to match existing where salvaged.
 - g. Refinish existing wood floors.
 - h. See drawings for Floor to be cleaned only, not screened, or not sanded, before refinishing where preserved wear patterns are desired.
 - i. Apply various floor finish systems. Provide testing of finishes and stains for compatibility and mock-ups as noted and specified herein.
 - 2. Provide areas of new wood to match existing at existing repaired or patched flooring.
 - 3. For rooms to be stabilized and cleaned only before protective refinishing, protect the existing wear patterns and marks to be preserved under matte clear finishing systems. Refer to the drawings and schedule.
 - 4. Stabilizing and cleaning wood floors is required under all carpet and floor cloth flooring.

1.3 RELATED SECTIONS

- A. Restoration Treatment for Historic Woodwork – Section 060312.

1.4 QUALITY ASSURANCE

- A. Historic Interiors: Spaces, areas, rooms, surfaces, materials, finishes, and overall appearance that are important to the successful restoration and reconstruction are to be preserved and restored consistent with the remaining historic fabric.
- B. Installer Refinisher Qualifications: Specialized wood flooring firm with not less than ten (10) years' successful experience in restoration and installation of wood flooring of type encountered in this project.
- C. General Standard: Comply with recommendations of National Flooring Manufacturer's Association (NFMA).
- D. Source Quality Control: Obtain flooring patch wood materials and components of each type from single manufacturer or source, to ensure match of quality, color, pattern and texture.
- E. Refinishers include:
 - 1. Franklin Floors
Drew Rydingsword
(203) 910-5418
 - 2. Morgans East Finishing
Steve Battagliano
(860) 283-5407
 - 3. Stephen Gamble Historic Floors
Greenwich, CT
(203) 866-0892
 - 4. Other equally qualified finishers are to submit qualifications.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's detailed technical product data and installation instructions for each new component of wood flooring. Include instructions for handling, storage, installation, finishing, protection and maintenance.
- B. Samples: Submit sets of patching samples for wood flooring.
 - 1. Include twenty-four inch (24") samples of reclaimed and new wood replacement for each type of wood.
- C. Submit product data for all stains, stain sealers, fill repairs, and clear-coat finishes, for all floor types.

1.6 MOCK-UPS

- A. After floor repairs are made:
 - 1. In order to preserve historic or desired character of wood floors and to determine best results for finishing products to be used, as well as final colorations and sheens, mock-ups are required.

- a. WD-1 and WD-8: 3 iterations. Restoring existing plank floors
 - 1). Two mock-ups and one refined mock-up.
 - 2). Mock-Up 1: After repairs, screen existing flooring using hand-held screening tools to remove clear finish coats of wax, oils, and urethanes. Preserve existing stain color, touch up or recoat existing staining, seal coat with compatible stain sealer, and apply 3 coats of clear finish is matte and satin sheens. (3' satin, 3' matte).
 - 3). Mock-Up 2: After repairs, sand existing wood floors with hand held sanding tools to remove finishes and stain. Maintain character and uneven nature of existing boards as sanding proceeds. Wire brushing if needed. Retain color with Bona Chroma custom color 1, apply Bona clear seal, and 3 coats of Bona satin and matte sheens (3' satin, 3' matte).
 - 4). Mock-Up 3: Same as above with custom stain color 2 and finishing system as described above. Intent of mock-up 3 is to refine final color and sheen.
 - b. WD-3: 2 iterations. Preserve colors and wear patterns.
 - 1). This wood floor type is to be protected and preserved due to its historic significance. After repairs and general construction work is complete, uncover protected floor and provide the following treatment:
 - 2). Mock-Up 1: Vacuum and gently clean existing floor and wear patterns with a neutral cleaner. Remove all dust with tack rags, seal wood floor with 2 coats of Bona HD "Raw" matte sealer or equal. Apply wood base board after treatment.
 - 3). Mock-Up 2: Preserve mock-up 2 for any necessary refinements.
 - c. WD-6: 1 iteration. Refinishing existing strip flooring.
 - 1). After repairs, screen existing pine floors to remove top clear coats of finish only. Staining is to remain. Provide 3 coats of satin top coating in a compatible coating material by Bona HD.
 - d. WD-2 and WD-7: See Section 096400.
2. Identify locations for mock-up with Owners.
 3. Provide 3'-0" x 3'-0" mock-up in place of the stripping or screening and refinishing process of each type of wood floor for Architect's review and approval. Demonstrate the process as well as the process of replacing floor area that is missing or damaged.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Moisture Content: At time of delivery, limit average moisture content of wood flooring components to 12%, with 14% maximum for any piece.

- B. Protect wood flooring materials from excessive moisture in shipment, storage and handling. Deliver in unopened cartons or bundles and store in a dry place, with adequate air circulation. Do not deliver material to building until "wet work" such as concrete and plaster have been completed and cured to a condition of equilibrium.

1.8 PROJECT CONDITIONS

- A. Conditioning: Do not proceed with installation of wood flooring work until spaces have been enclosed and are at approximate humidity condition planned for occupancy. Condition wood materials for 5 days prior to start of installation by placing in spaces to receive flooring and maintaining ambient temperature between 65- and 70-degrees F. before, during and after installation. Open packages of new wood flooring unit which are sealed to permit natural adjustment of moisture content.

PART 2 PRODUCTS

2.1 WOOD MATERIALS REPAIR

- A. Wood Strip and Plank Flooring: Furnish wood of species and dimensions to match existing or as approved by the Architect. Wood flooring to be used as replacement pieces for existing non-matching or deteriorated wood and shall match existing in species, size, color, grain and overall appearance. Flooring shall be grooved and routed to match existing if it exists, for ease and quality of installation, mating new units to existing. Flooring shall match existing patterns and sizes to replicate existing types, complying with grading rules. Wood shall be kiln-dried.
 - 1. 2" to 2-1/4" wide Pine Strip Flooring.
 - 2. 8" to 10-1/2" wide blend of Hart Pine planks with exposed square nails.
 - 3. 5" to 6" wide blend of Hart or White Pine planks with concealed fasteners.
 - 4. 5" to 8" wide Mahogany plank floors with wood pegs.
- B. Subflooring: CDX type 1/2" and 3/4" thick plywood sheathing where noted.
- C. Wood Trim: Provide wood saddles and thresholds, as indicated in or adjacent to wood flooring, of same species, grade and cut as wood flooring, unless otherwise noted. All wood saddle dimensions and heights are to be ADA compliant and meet existing flooring materials. Sizes and heights will vary.
- D. Shims and sleepers as required to meet floor elevations.

2.2 WOOD FIELD FINISHING AND MOCK-UP TRIALS

- A. Match existing wood floor types.
- B. Wood Filler: Compatible with finish system components and recommended by filler and finish manufacturers for use indicated. If required to match approved Samples, provide pigmented filler. Fillers are to be used in floor boards and not between floor boards.
- C. Stain: Deep Penetrating and nonfading type; color shall match Field approved mock-ups and be sealed prior to finish coats.

1. Basis of Design Manufacturer: BONA Chroma custom stain and 2 coats of Bona Clearseal stain sealer.
- D. Clear coatings: Compatible with finish system components and recommended finish manufacturers for use indicated; sheen shall match Field approved mock-ups.
 1. Basis of Design Manufacturer: BONA Traffic HD Raw. 3 coats recommended for commercial use.

2.3 ACCESSORIES

- A. Fasteners: Provide screw type flooring nails as recommended by NOFMA in "Installation Manual," for strip floors
- B. Nails: Match existing square head exposed nails for plank flooring.
- C. Wood Pegs: cut from same lumber stock as flooring to match the existing.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where wood flooring restoration is to be performed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 PREPARATION

- A. Wherever direct application of wood flooring to concrete substrate is required, test for dryness before proceeding with installation. If tests show dampness, do not proceed until slab is dry.

3.3 INSTALLATION

- A. General: Comply with instructions and recommendations published in NOFMA's in "Hardwood Flooring Installation Material". Mock-ups are required for all finishes.
- B. Pattern: Comply with existing sizes and pattern or direction of pattern for laying wood flooring, as directed by Architect, or the existing conditions.
- C. Replace damaged, missing existing wood flooring boards with new boards that match existing per type as directed by the Architect. New boards to be set flush with existing wood flooring. Follow the same installation procedures as existing floor.
- D. Secure all loose floor boards in same fastening system throughout full project including under other carpeting or floor cloth finishes.
- E. Expansion Space: Maintain expansion space at walls and other obstructions and terminations of flooring, not less than 1/4". Fill expansion space with flush cork expansion strip.
- F. Provide treated wood components (plywood, shims, etc.) as required to match existing flooring installation or required elevations.

- G. Install wood flooring components to replicate the original installation as approved by the Architect, and to match the existing floor pattern.

3.4 REFINISHING SYSTEMS: HISTORIC FLOORS

- A. Preserve or restore wood floor materials; apply new stains, clear stain sealer coatings, and finish coatings with sheens according to selected final approved field mock-ups for each type of wood.
- B. Installers and refinishers are to ensure compatibility of finish systems coatings with any existing finish that remains, i.e. screening and refinishing, to prevent delamination of coatings.
- C. Final finishes to follow manufacturer's recommendations for finishing products and process, i.e. curing times, intermediate tack rag, and cleanup and resanding as well as coatings of stains, sealers, and clear coats.

3.5 PROTECTION

- A. Protect completed wood flooring work during remainder of construction period with suitable covering, so that flooring and finish will be without damage or deterioration at time of acceptance. Do not cover until wood floor reaches full cure, and not before seven days after applying last finish coat.

END OF SECTION

SECTION 092300 - LATHING AND PLASTERING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor materials, equipment and services necessary to complete the lathing and plastering as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Metal lath and support systems.
 - 2. Gypsum plaster for interior applications.
 - 3. Accessories.

1.3 RELATED SECTIONS

- A. Painting - Section 099000.

1.4 QUALITY ASSURANCE

- A. Qualifications of Installers: For actual installation of lath and plaster, use only skilled journeyman plasterers with a minimum of 5 years experience who are completely familiar with the referenced standards and with the requirements for this work.
- B. Work of this Section shall conform to the following minimum standards:
 - 1. ASTM B 69 – Specification for Rolled Zinc
 - 2. ASTM C 841 - Standard Specification for Installation of Interior Lathing and Furring
 - 3. ASTM C 842 - Standard Specification for Application of Interior Gypsum Plaster
 - 4. ASTM C 847 – Standard Specification for Metal Lath, galvanizing shall be G-90 coating
 - 5. ASTM C 1063 - Standard Specification for Installation of Lathing and Furring for Portland Cement-Based Plaster
 - 6. ASTM C 926 - Standard Specification for Application of Portland-Cement-Based Plaster
 - 7. ASTM C 847 - Standard Specification for Metal Lath
 - 8. ASTM C 933 - Standard Specification for Welded Wire Lath
 - 9. ASTM C 28 - Standard Specification for Gypsum Plasters
 - 10. ASTM C 631-81 - Standard Specification for Bonding Compounds for Interior Plastering

11. ASTM C 35 - Standard Specification for Inorganic Aggregates for Use in Gypsum Plaster

12. ASTM C 206 - Standard Specification for Finishing Hydrated Lime

- C. Allowable Tolerances: For flat surfaces, do not exceed 1/8" in 10'-0" for bow or warp of surface, and for plumb or level.
- D. Plaster ceiling and soffit assemblies shall be fabricated and installed so that deflection of plaster surfaces does not exceed L/360.
- E. Plaster wall assemblies shall be fabricated and installed so that deflection of plaster surfaces does not exceed 5 psf for interior and 30 psf for exterior.

1.5 SUBMITTALS

- A. Materials List: Before any lath and plaster materials are delivered to the job site, submit to the Architect a complete list of all materials proposed to be furnished and installed under this portion of the Work, samples of all accessories, and copies of the manufacturer's current recommendations as to methods and installation.
- B. Shop Drawings: Submit shop drawings of furring and lathing framing and control joint locations. Shop drawings shall detail the installation of lath, including lath discontinuity, lath fastening and fastener support requirements.
- C. Samples: Submit 12" x 12" sample panels of plaster showing finish described herein.

1.6 PRODUCT HANDLING

- A. General
 - 1. Deliver all manufactured products to the site in their original unopened containers with all labels intact and legible at the time of use.
 - 2. Do not permit scattering of materials or equipment but use all means necessary to ensure neatness of the site and structure at all times.
 - 3. Perform all cleaning of tools and equipment only in the areas set aside for that purpose.
- B. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.7 JOB CONDITIONS

- A. Environmental Conditions: Comply with referenced standards.
- B. Protect contiguous work from soiling, spattering, moisture deterioration and other harmful effects which might result from plastering.

PART 2 PRODUCTS

2.1 METAL PRODUCTS

A. Lath

1. Provide galvanized steel, large opening diamond mesh lath weighing 3.4 lbs. per sq. yd. for interior use, and 3.6 lbs. per sq. yd. for exterior use, complying with ASTM C 847 with G-90 galvanized coating.
2. Lath shall be paper backed over wall sheathing only.

B. Main Carrying Channels: Provide 1-1/2" cold rolled galvanized steel carrying channels weighing 475 lbs. per 1000 lin. ft. Space channels 3'-0" o.c. Galvanizing shall conform to ASTM A-653, G-90 coating.

C. Furring Channels: Provide 3/4" cold rolled galvanized steel furring channels weighing 300 lbs. per 1000 lin. ft. Space furring channels 16" o.c. Galvanizing shall conform to ASTM A-653, G-90 coating.

D. Hangers and Supports

1. Provide hot rolled galvanized steel rod hangers 1/4" dia.; space hangers 3'-0" o.c. or 1" x 3/16" galvanized steel flat bars. Galvanizing shall conform to ASTM A-653, G-90 coating.
2. Provide 18 ga. galvanized wire ties for lathing and accessories.
3. Hanger Anchorage Devices: Galvanized steel screws, clips, bolts, cast-in-place concrete inserts or other devices applicable to the method of structural anchorage for ceiling hangers and whose suitability for use intended has been proven through standard construction practices or by certified test data. Size devices for 3 x calculated hanger loading except size direct pull-out concrete inserts for 5 x calculated hanger loading.

E. Metal Plastering Accessories and Reinforcement

1. General: Coordinate depth of accessory with thickness of and number of coats of plaster to be applied. Unless otherwise noted, all accessories shall be of zinc alloy material conforming to ASTM B-69.
2. Small-Nose Corner Beads: General purpose type with expanded perforated flanges.
3. Cornerite: Manufacturer's standard preformed interior corner reinforcement made from 2.5 lb. per sq. yd. diamond mesh lath.
4. Square-Edged Casing Beads: Manufacturer's standard with expanded or short flange to suit application.
5. Two-Piece Control Joints: Manufacturer's standard roll-formed pair of casing beads with modified back flanges providing positive slip joint action and dust barrier, adjustable for joint width variation of 1/8" to 5/8".

- a. The Contractor may, at his option, provide “Double J” (XJ-15) expansion joint fabricated of hot dipped galvanized steel made by California Expanded Metal Lath Products Co.
6. Corner Reinforcement: Special stucco-type woven galvanized wire corner reinforcing strips.
7. Line Wire: 18 ga. soft galvanized steel wire.
8. Fasteners: Galvanized steel, of type and length suitable for adequate penetration of the substrate.

2.2 GYPSUM PLASTER SYSTEM

A. Materials

1. Aggregate: Sand for Gypsum plaster shall conform to the requirements of ASTM C 35, latest edition.
2. Hydrated lime shall conform to the requirements of ASTM C 206.
3. Binder shall be hair or fiber as recommended by the plaster manufacturer.
4. Gypsum neat plaster and calcined gypsum shall conform to the requirements of ASTM C 28, latest edition.
5. Prepared Finish Coat: Factory prepared finish for gypsum plaster, type recommended by the manufacturer for smooth troweled finish.

B. Gypsum Plaster on Metal Lath

1. Scratch coat shall consist of one (1) part gypsum plaster to not more than two (2) parts sand by weight. If plaster is unfibered, add the proper amount of fiber as recommended by the plaster manufacturer.
2. Brown coat shall consist of one (1) part gypsum plaster to not more than three (3) parts sand by weight.
3. Finish coat shall be factory prepared mix as noted above.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where lathing and plastering is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 PREPARATION

- A. Ceiling Anchorages: Coordinate work with structural ceiling work to ensure that inserts and other structural anchorage provisions have been installed to receive ceiling hangers.

1. Furnish concrete inserts, steel deck hanger clip and similar devices to other trades for installation well in advance of time needed for coordination with other work.

3.3 INSTALLATION OF METAL LATH AND SUPPORT SYSTEM FOR CEILINGS AND SOFFITS

- A. Where lathing and metal support system abuts building structure horizontally, and where partition/wall work abuts overhead structure, isolate the work from structural movement sufficiently to prevent transfer of loading into the work from the building structure. Install slip or cushion type joints to absorb deflections and maintain lateral support. Frame both sides of control and expansion joints independently, and do not bridge joints with furring and lathing or accessories.
- B. Install supplementary framing, blocking and bracing where required to support fixtures, grilles, etc., within plaster ceilings and soffits.
- C. Splicing Members: Lap furring members 8" and runner channels 12", and wire-tie near each end of lap. Splice plastering accessories by use of concealed splines, anchored to prevent offsets.
- D. Space main carrying channels 3'-0" o.c.; level channels to a tolerance of 1/8" in 10'-0" and space hangers along channels 3'-0" o.c.
- E. Secure hangers to channels and to ceiling inserts by looping and wire-tying.
- F. Wire tie furring channels to main carrying channel 16" o.c. Install metal lath to furring channels by wire-tying or clipping to furring channels in accordance with industry standards.
- G. Install furring and lathing plumb, level and true to line with a tolerance of 1/8" in 10'-0" and in accordance with industry standards. Space expansion joints as indicated on drawings.
- H. Metal lath shall be applied with the long dimension of the sheet across the supports. Lap sheets not less than 2" at sides and not less than 3" at ends. End laps shall occur only at supports. Secure lath to supports 6" o.c. max. Provide a tie in side laps at each support and midway between supports.

3.4 SELF-FURRING LATH

- A. Lap lath 1" at ends and 2" at laps. Fasten lath to solid back-up using non-corrosive masonry screw anchors spaced 8" o.c. both directions that penetrate substrate a minimum of 2".

3.5 INSTALLATION OF PLASTERING ACCESSORIES

- A. Anchor accessories to the plaster base or substrate 8" o.c. along each flange, by wire tying to lath.
- B. Miter or cope exposed portions of accessory items at corners, and install with tight joints. Spline splices to avoid offsets; conceal splines.
- C. Set exposed accessories plumb, level and true to line, with a tolerance of 1/8" in 10'-0". Shim as required and align units with adjoining work in a manner which will produce the best possible visual effect.

- D. Install metal casing beads where shown and at the following locations:
 - 1. At openings and terminations of plaster finish where otherwise edge of plaster would be exposed.
 - 2. Where interior plaster abuts adjacent wall.
 - 3. Where interior plaster abuts other finish, and termination is not lapped by other finish.
- E. Install metal corner beads at external corners.
- F. Install control joints where indicated on approved shop drawings; space control joints in accordance with ASTM C 841 and ASTM C 1063.
 - 1. Mount control joint flanges by wire ties to the lath only

3.6 GENERAL PLASTERING REQUIREMENTS

- A. Mechanically mix plaster materials at the project site; do not hand mix except where small amounts are needed, using less than one bag of plaster material.
- B. Sequence plaster installation properly with the installation and protection of other work, so that neither will be damaged by the installation of other work.
- C. Cut out and replace all unbonded spots. Build in the work of others and do all cutting and patching of plaster in this connection. Where abutting other built-in materials, plaster shall be finished tightly against them and be neatly trimmed.
- D. Repair surface defects. Surfaces shall be within 1/32" to 1/16" of true plane.
- E. Plaster thicknesses noted herein or on drawings shall be considered as a minimum; plaster shall be of such thickness required to plumb and square wall surfaces, and to level ceilings so that plaster is flush with adjacent surfaces.

3.7 GYPSUM PLASTER APPLICATION

- A. Scratch Coat: Scratch coat shall be full and approximately 3/8" thick, applied with sufficient force to form good keys. Scratch coat shall be evenly cross-scratched upon attaining its initial set and shall be kept damp with a fog spray for 48 hours.
- B. Brown Coat: Brown coat shall be applied after the scratch coat has set, but not less than forty-eight (48) hours after the application of the scratch coat. Apply with sufficient force to ensure tight contact with scratch coat.
 - 1. All joints in brown coat plaster shall be lap joints.
 - 2. After drying, all shrinkage cracks shall be cut out and filled with scratch coat plaster.
- C. Finish Coat: Finish shall be applied over brown coat, which has set and is surface dry, shall be scratched in thoroughly, laid on well, doubled back, and filled out to a true, even surface. The thickness shall be from 1/16" to 1/8". The finish shall be allowed to draw a few minutes and then shall be well troweled with water to a smooth surface, free from blemishes and trowel marks. Finish flat plaster items true and even within 1/8" tolerance in 10'-0".

- D. Total thickness of gypsum plaster shall be no less than 5/8”.

3.8 CUTTING AND PATCHING

- A. Cut, patch, point-up and repair plaster as necessary to accommodate other work and to restore work, free from cracks, dents and imperfections. Repair or replace work to eliminate blisters, buckles, excessive crazing and check cracking, dry-outs, efflorescence, sweat-outs and similar defects, including areas of the work which do not comply with specified tolerances, and where bond to the substrate has failed.
- B. Sand plaster lightly to remove trowel marks and arrises.

3.9 CLEANING AND PROTECTION

- A. Promptly remove plaster from surfaces which are not to be plastered. Repair floors, walls and other surfaces which have been stained, marred or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers and equipment and clean floors of plaster debris.

END OF SECTION

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SECTION 092433 CEMENT PARGING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the parging work as shown on the drawings and/or specified herein.

1.3 RELATED SECTIONS

- A. Concrete Unit Masonry - Section 042200.

1.4 LEED REQUIREMENTS

- A. The Owner requires the Contractor to implement practices and procedures to meet the project's environmental performance goals, which include achieving LEED Certified certification. Specific project goals that may impact this area of work include: use of recycled-content materials; use of locally-manufactured materials; use of low-emitting materials; Erosion and Sedimentation Control; Construction Waste Management Plan; and the implementation of a Construction Indoor Air Quality Management Plan. The Contractor shall ensure that the requirements related to these goals, as defined in the sections below, are implemented to the fullest extent. Substitutions, or other changes to the work proposed by the Contractor or his Subcontractors, shall not be allowed if such changes compromise the stated Green Building Performance Criteria.

1.5 QUALITY ASSURANCE

- A. Mock-Ups: Before beginning Portland cement parging work, prepare mock-ups to provide standards for work of this Section. Do not proceed with parging work until Architect has approved mock-ups.
 - 1. Locate mock-ups as directed by Architect.
 - 2. Notify Architect 48 hours prior to start of each mock-up.
 - 3. Use crew that will execute the work and follow requirements of this Section.
 - 4. Repeat mock-ups as necessary to obtain Architect's approval.
 - 5. Allow mock-ups to dry for seven days to allow parging to reach final color and allow potential problems to appear. Notify Architect when mock-ups are ready for review.
 - 6. Protect approved mock-ups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.
 - 7. Approved mock-ups in undamaged condition at time of Substantial Completion may be incorporated into the Work.

8. Approved mock-ups will represent minimum standards for Portland cement parging work. Subsequent parging work that does not meet standards of approved mock-ups will be rejected.

1.6 SUBMITTALS

- A. Submit technical and installation information for the following:
 1. Portland cement.
 2. Lime.
 3. Sand aggregate.
 4. Pigments.
 5. Bonding agent.

PART 2 PRODUCTS

2.1 PORTLAND CEMENT PARGING MATERIALS

- A. Parging shall be Type S or Natural Hydraulic Lime (NHL).
- B. Portland Cement: ASTM C 150, Type 3 (High Early Strength).
 1. Provide white cement, gray Portland cement, or a combination of white Portland cement and gray Portland cement as required to mix mortar matching color selected by Architect.
- C. Lime: Special hydrated lime for finishing purposes, ASTM C 206, Type S, or special hydrated lime for masonry purposes, ASTM C 207, Type S.
- D. Sand Aggregate: ASTM C 897, natural or manufactured sand. Select sand to produce mortar matching color selected by Architect.
- E. Pigments: Inorganic oxides, alkali-resistant, non-fading, complying with ASTM C 979, and with a record of successful use in masonry materials containing cement and lime.
- F. Water: Clean, fresh, potable, and free from substances that might adversely affect installation, curing, and durability of parging and from contaminants that may cause staining or efflorescence.
- G. Bonding Agent: Euco Weld manufactured by Euclid Chemical Co., 19218 Redwood Rd., Cleveland, OH 44110 (800-321-7628).

2.2 PROPORTIONS OF PARGING MIX

- A. General: Use measuring equipment that allows proportions to be accurately measured and repeated. The proportions specified are for dry cements and limes and damp, loose (saturated, surface-dry) sand. If ingredients with different moisture contents are used (for example, lime putty is used in place of lime or dry sand is used in place of damp, loose sand), adjust quantities so that the proportions of ingredients in the mixes equal the proportions specified as approved by Architect.

1. Submit 6-inch-square x 1/2-inch-thick samples of parging mix that are thoroughly dry. Mix shall match color selected by Architect.

B. Proportions for Parging Mortar

1. 1 part Portland cement (use white Portland cement or a combination of white and gray Portland cement to provide parging mortar of color selected by Architect).
2. 1 part hydrated lime.
3. 6 parts sand.
4. Pigment as required to provide color matching color selected by Architect (not to exceed 10 percent of weight of Portland cement).

2.3 MIXING PARGING MORTAR

- A. General: Mix parging ingredients in an approved type of power-operated batch mixer. Mix for time required to produce a homogeneous plastic mortar but not be less than five minutes: approximately two minutes for mixing dry materials and not less than three minutes for mixing after water has been added.
1. Do not prepare more mortar than can be applied within one hour.
- B. Consistency: Add only sufficient liquid to provide workable mix.
- C. Color: Parging mortar shall match color as selected by the Architect. Achieve color primarily by blending white and gray Portland cement and using appropriately colored aggregate. Adjust to achieve final color by adding pigments not to exceed 10 percent of weight of Portland cement.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

- A. General: Clean substrate free of dust, dirt, and contaminants using stiff fiber-bristle brushes and clean water.

3.2 PARGING APPLICATION

A. General

1. Provide consistent mixes and mix materials thoroughly.
2. Keep trowels and equipment clean at all times.
3. Work with a "wet" joint. Do not wet with water but with soft material. Material is no longer wet if the surface has started to dry.
4. Carry parge coats to completion without interruption or delay for each panel or building element.

- B. Bonding Agent Application: Apply bonding agent to clean and dry substrate to comply with material manufacturer's recommendations.

C. Application

1. Apply with sufficient material and force to form good bond with dry bonding agent on masonry substrate.
2. Trowel to uniform thickness of ~1/4" and to a true surface.
3. Provide a smooth architectural surface to match mock ups approved by Architect.
4. Moist cure first coat for 48 hours.

D. Protection of Applied Parging: Protect parging from freezing and from too-rapid and uneven drying.

E. Defective Work: Work showing variations in surface finish appearance due to pause in work, change in workmanship, or difference in mix color and work with cracks or other defects will be rejected by the Architect. Remove rejected work, properly prepare substrate, and provide new work complying with requirements specified.

F. Cleaning and Repair: Remove parging from adjacent materials to remain after installation of each coat. Repair or replace damaged materials to remain at Architect's direction at no additional cost.

END OF SECTION

SECTION 092613 VENEER PLASTERING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor materials, equipment and services necessary to complete the veneer plastering as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Gypsum board base to receive veneer plaster finish where indicated on the drawings.
 - 2. Veneer plaster materials.
 - 3. Trim, accessories and miscellaneous materials.

1.3 RELATED SECTIONS

- A. Lathing and Plastering - Section 092300.
- B. Gypsum Drywall - Section 092900.
- C. Painting and Finishing- Section 099000.

1.4 LEED REQUIREMENTS

- A. The Owner requires the Contractor to implement practices and procedures to meet the project's environmental performance goals, which include achieving LEED Certified certification. Specific project goals that may impact this area of work include: use of recycled-content materials; use of locally-manufactured materials; use of low-emitting materials; Erosion and Sedimentation Control; Construction Waste Management Plan; and the implementation of a Construction Indoor Air Quality Management Plan. The Contractor shall ensure that the requirements related to these goals, as defined in the sections below, are implemented to the fullest extent. Substitutions, or other changes to the work proposed by the Contractor or his Subcontractors, shall not be allowed if such changes compromise the stated Green Building Performance Criteria.

1.5 QUALITY ASSURANCE

- A. Manufacturer's Instructions: In addition to the requirements of these specifications, comply with manufacturer's instructions and recommendations for all phases of work.
- B. Single Source Responsibility: Obtain veneer plaster products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of veneer plaster and gypsum base.

1.6 SUBMITTALS

- A. Product Data: Submit manufacturer's product specifications and installation instructions for each component of veneer plaster systems, including other data as may be required to show compliance with these specifications.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in their original, unopened containers or bundles, bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and in manner to keep them dry, protected from the weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.
- C. Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal corner beads, casing beads and trim from being bent or damaged.

1.8 PROJECT CONDITIONS

- A. Environmental Requirements, General: Comply with requirements of referenced veneer plaster application standard and recommendations of veneer plaster manufacturer, for environmental conditions before, during and after application of veneer plaster.
- B. Cold Weather Protection: Provide cold weather protection when ambient outdoor temperatures are below fifty-five (55) degrees F. for a minimum period of one week prior to and during veneer plastering, and for a minimum period of one week after veneer plaster has set, unless otherwise indicated.
- C. Ventilation: Ventilate building spaces as required to remove water in excess of that required for hydration of veneer plaster, immediately after its application and set.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: For wall and ceiling metal support assemblies, refer to Section 092900, "Gypsum Drywall."
- B. Approved Manufacturers: Materials specified below, unless noted otherwise, are those of U.S. Gypsum Co. Equivalent materials of National Gypsum Co., Georgia-Pacific, or approved equal products of other manufacturers, meeting specification requirements and approved by Architect.
- C. Board: Imperial Gypsum Base, 5/8" thick, forty-eight (48) inches wide, square edge, regular conforming to ASTM C1396; in maximum lengths to minimize end joints.
- D. Laminating Adhesive: Durabond Joint Compound Taping or 90, mixed in accordance with manufacturer's recommendations.
- E. Trim Accessories: Manufacturer's standard galvanized steel beaded units with flanges for concealment in veneer plaster, including corner beads, edge trim and control joints.
- F. Reinforcing Tape: Type P glass fiber mesh joint reinforcing tape for use with veneer plaster.

- G. Plaster: Two (2) coat application to a total thickness of 1/8" consisting of Imperial Base Coat plaster and Diamond Finish plaster.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where veneer plastering is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. General: This Section of work shall be responsible for applying veneer plaster base board over drywall wall and/or ceiling framing assemblies specified and installed by Section 092900, "Gypsum Drywall." After application of veneer plaster base board, apply veneer plaster wall surface.
- B. Board Application: Screw apply for laminate veneer plaster base board to drywall back-up and/or steel studs, using screws and/or laminating adhesive with supplemental screws through base layers and into supports, all in accordance with manufacturer's recommendations, complying with ASTM C844. Erect boards with tolerances as follows:
 - 1. No more than 1/32" offsets between planes of gypsum base faces.
 - 2. No more than 1/16" in 8'-0" for plumb, level, warp and bow.
- C. Trim and Joint Tape
 - 1. Install metal corner beads at external corners of veneer plaster work.
 - 2. Install metal edge trim whenever edge of board would otherwise be exposed or semi-exposed. Provide type with face flanges for embedment in plaster.
 - 3. Install expansion joints in accordance with the requirements of Section 092900, "Gypsum Drywall."
 - 4. Install joint tape on gypsum board joints (including internal corners) to be covered with veneer plaster. Comply with manufacturer's recommendations for attachment and embedment of tape in plaster or other joint compound, and for pre-filling of joints.
- D. Plaster Application
 - 1. Mixing and Application: Machine mix plaster, except for small amounts of work requiring less than one bag of plaster and apply to substrate by machine or by hand as required to produce the required texture of finished plastering.
 - 2. Plastering: Provide two (2) coat application of veneer plaster on surfaces shown or scheduled for veneer plaster finish. Apply veneer plaster base coat and veneer plaster finish-coat in separate plastering operations and dry each coat.
 - a. IMPERIAL Basecoat Plaster shall be applied over base to a finished thickness of 1/16". All tape shall be embedded and beads shall be filled with a tight, thin coat of plaster material. When embedding plaster has set completely, a tight, thin coat shall

be scratched in over the entire area immediately doubling back to the full thickness. All voids and imperfections shall be filled and surface left rough by leveling with serrated darby or cross raking with fine wire rake.

- b. DIAMOND Finish Plaster shall be applied to a 1/16" thickness over IMPERIAL Basecoat Plaster. Plaster shall be scratched in thoroughly over dry basecoat and immediately doubled back to fill out a true, even surface. DIAMOND Finish Plaster shall be water troweled to a smooth, dense, surface free from blemishes and irregularities. Troweling shall continue until final set occurs.

3.3 PATCHING

- A. Plaster showing over sanding, cracks, blisters, pits, checks, or discoloration will not be acceptable. Such plaster shall be removed and replaced with new plaster. Patching of defective work will be permitted only when approved by the Architect, and such patching shall match existing work.

3.4 CLEANING

- A. At the completion of the finish plastering work, all plaster daubs shall be cleaned from beads, control joints and metal trim. All plaster rubbish shall be removed from the building, leaving floors broom clean. Excess material, scaffolding, tools and other equipment shall be removed from the building and job site.

END OF SECTION

SECTION 092900 - GYPSUM DRYWALL

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the gypsum drywall as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Gypsum board work for partitions, ceilings, column enclosures, furring, and elsewhere where gypsum drywall work is shown on drawings.
 - 2. Metal supports for gypsum drywall construction.
 - 3. Acoustical insulation for gypsum drywall work.
 - 4. Sealant for gypsum drywall work.
 - 5. Concealed metal reinforcing for attachment of railings, toilet partitions and other items supported on drywall partitions and walls.
 - 6. Taping and finishing of drywall joints.
 - 7. Installing rings and frames in drywall surfaces for grilles, registers and lighting fixtures.
 - 8. Gypsum wallboard cants at beams and other projections over 2" deep in elevator shafts where adjoining wall is of gypsum wallboard construction.
 - 9. Gypsum shaftwall construction.
 - 10. Bracing and connections.

1.3 RELATED SECTIONS

- A. Cold-Formed Metal Framing – Section 054000.
- B. Thermal Insulation - Section 072100.
- C. Access Doors - Section 083113.
- D. Veneer Plastering - Section 092613.
- E. Painting and Finishing - Section 099000.
- F. Elevators - Division 14.
- G. Rings for grilles, registers and light fixtures - Division 23 and 26.

1.4 QUALITY ASSURANCE

- A. The following standards, as well as other standards which may be referred to in this Section, shall apply to the work of this Section:
 - 1. The Gypsum Construction Handbook, latest edition, USG.
 - 2. Construction Guide, latest edition, National Gypsum.
 - 3. ASTM A 568 "Standard Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements For"
 - 4. ASTM C 475 "Standard Specification for Joint Treatment Materials for Gypsum Wallboard Construction"
 - 5. ASTM C 645 "Standard Specification for Non-Structural Steel Framing Members"
 - 6. ASTM C 754 "Standard Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Panel Products"
 - 7. ASTM C 840 "Standard Specification for Application and Finishing of Gypsum Board"
 - 8. ASTM C 919 "Standard Specification for Use of Sealants in Acoustical Applications"
 - 9. ASTM C 954 "Standard Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs From 0.033 in. to 0.112 in. in Thickness"
 - 10. ASTM C 1002 "Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Board"
 - 11. ASTM C 1177 "Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing"
 - 12. ASTM C 1178 "Standard Specification for Glass Mat Water Resistant Gypsum Backing Board"
 - 13. ASTM C 1278 "Standard Specification for Fiber-Reinforced Gypsum Panel"
 - 14. ASTM C 1396 "Standard Specification for Gypsum Board"
 - 15. ASTM D 3273 "Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber"
- B. Allowable Tolerances: 1/32" offsets between planes of board faces, and 1/16" in 8'-0" for plumb, level, warp and bow.
- C. System Design Load
 - 1. Provide drywall shaft systems for elevators designed and tested by manufacturer to withstand a lateral loading (air pressure) of 10 lbs. per sq. ft. for the maximum wall height required, and with deflection limited to L/240 of partition height.

2. Provide standard drywall wall assemblies designed and tested by manufacturer to withstand a lateral load of 5 lbs. per sq. ft. for the maximum wall height required, and with deflection limited to L/240 of partition height.
 - a. Drywall assemblies with tile finish shall have a deflection limit of L/360.
 3. Provide drywall ceiling assemblies designed, fabricated and installed to have a deflection not to exceed L/360.
- D. Fire-Resistance Rating: Where gypsum drywall with fire resistance ratings are indicated, provide materials and installations which are identical with those of applicable assemblies tested per ASTM E 119 by fire testing laboratories, or to design designations in UL "Fire Resistance Directory" or in listing of other testing agencies acceptable to authorities having jurisdiction, and compliant with UL Test #2079; criteria for cycle movement for all field height wall sections requiring allowance for vertical deflection within framing details.
- E. Installer: Firm with not less than 5 years of successful experience in the installation of specified materials.
- F. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Steel Framing Industry Association (SFIA) or be a part of a similar organization that provides verifiable code compliance program.

1.5 SUBMITTALS

- A. Submit shop drawing for each drywall partition, furring and ceiling system showing size and gauges of framing members, hanger and anchorage devices, wallboard types, insulation, sealant, methods of assembly and fastening, control joints indicating column lines, corner details, joint finishing and relationship of drywall work to adjacent work.
- B. Samples: Each material specified herein, 12" x 12", or 12" long, or in manufacturer's container, as applicable for type of material submitted.
- C. Manufacturer's Literature: Submit technical and installation instructions for each drywall partition, furring and ceiling system specified herein, and for each fire-rated and sound-rated gypsum board assembly. Submit other data as required to show compliance with these specifications, including data for mold resistant joint compound.
- D. Test Reports: This Contractor shall submit test report, obtained by drywall manufacturer, indicating conformance of drywall assemblies to required fire ratings and sound ratings.
- E. Evaluation Reports: Submit evaluation reports certified under an independent third party inspection program administered by an agency accredited by IAS to ICC-ES AC98, IAS Accreditation Criteria for Inspection Agencies.

1.6 PRODUCT HANDLING AND PROTECTION

- A. Deliver, store and handle drywall work materials to prevent damage. Deliver materials in their original, unopened containers or bundles, and store where protected from moisture, damage and from exposure to the elements. Store wallboard in flat stacks.

- B. Protect wallboard from becoming wet.
- C. Protect metal framing from corrosion, deformation, and other damage during delivery, storage, and handling as required by AISI's "Code of Standard Practice".

1.7 ENVIRONMENTAL CONDITIONS

- A. Provide and maintain minimum temperature of fifty-five (55) degrees F. and adequate ventilation to eliminate excessive moisture within the building in the area of the drywall work for at least twenty-four (24) hours, prior to, during and after installation of drywall work. Installation shall not start until windows are glazed and doors are installed, unless openings are temporarily closed. Space above suspended ceilings shall be vented sufficiently to prevent temperature and pressure build up.

1.8 JOB MOCK-UP

- A. At a suitable location, where directed by the Architect, lay up a portion of a finished wall and ceiling demonstrating the quality of work, including finishing, to be obtained under this Section. Omit drywall boards in locations as directed by the Architect to show stud spacing and attachments; after acceptance, complete assembly.
- B. Adjust the finishing techniques as required to achieve the finish required by the Architect as described in this Section of these specifications.
- C. Upon approval of the mock-up, the mock-up may be left in place as a portion of the finished work of this Section.
- D. All drywall work shall be equal in quality to approved mock-up.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers for Gypsum Drywall Panels and Accessories: U.S. Gypsum Co., Georgia Pacific, CertainTeed Corporation, Continental Building Products, or National Gypsum Co. meeting specification requirements are acceptable.
 - 1. All drywall products must be manufactured in North America.
- B. Acceptable Manufacturers for Metal Supports of Drywall Assemblies: Unless otherwise noted, provide products manufactured by ClarkDietrich, Super Stud Building Products, Marino/Ware, or approved equal.

2.2 METAL SUPPORTS

- A. Metal Floor and Ceiling Runners
 - 1. Drywall Track: Formed from 0.0312 inch (20 U.S. Std. gauge) (unless otherwise noted) cold formed steel, width to suit shaped metal studs. Use 20 ga. top runners with 1-1/4" minimum flanges.

2. Deflection track or head of wall connections at rated partitions shall conform to UL #2079 for cycle movement. Provide positive mechanical connection of framing to structure, allowing for vertical movement within connections. Minimum of 0.0312 (20 ga.) cold formed steel for clips, 25 ga. cold formed steel for deflection track.
 - a. Product: ClarkDietrich; [BlazeFrame DSL] [MaxTrak] Slotted Deflection Track As manufactured by the Steel Network, VertiClip or VertiTrack or equal made by Metal-Lite Inc.
 - b. FireTrak (including stud clips) by FireTrak Corp. or equal made by Metal-Lite Inc.
3. Shaft Wall "J" Type Runner: Formed from 0.0329 inch (20 U.S. Std. gauge) galvanized steel, 1" x 2-1/2" or 4" wide (to suit detail) x 2-1/4" (for shaft wall).

B. Metal Studs, Framing and Furring

1. C-Shaped Studs: Channel type with holes for passage of conduit formed from minimum 0.0312 inch (20 U.S. Std. gauge) (unless heavier gauge is required to meet deflection limits) cold formed steel, width as shown on drawings.
2. Furring Channels: Hat shaped, formed from galvanized steel, 25 U.S. Std. gauge.
 - a. Product: ClarkDietrich; Furring Channel, or comparable product.
3. "C-H," "CT," or "I" Type Stud: 1-1/2" x 2-1/2", 4" or 6" wide (to suit detail) galvanized steel. Use for shaft wall construction; gauge and size as required to meet deflection limits given herein.
 - a. Product: ClarkDietrich; CT Stud, or a comparable product.
4. Double "E" Type Stud or "J" Track with Holding Tabs: 1" x 2-1/2", 4" or 6" wide (to suit detail) galvanized steel. Use for shaft wall construction; gauge and size as required to meet deflection limits given herein.
 - a. Product: ClarkDietrich; J-Tabbed Track, or a comparable product.
5. Continuous 16 gauge x 8" wide steel wall plate screwed to studs as required for support of railings, toilet partitions and other items supported on drywall partitions and walls.

C. Suspended Ceiling and Fascia Supports

1. Main Runners: 1-1/2" steel channels, cold rolled at 0.475 lbs. per ft., rust-inhibitive paint finish.
2. Furring Members: Screw-type hat-shaped furring channels of 25 ga. zinc-coated steel; comply with ASTM C 645.
3. Hangers: Galvanized, 1" x 3/16" flat steel slats capable of supporting 5x calculated load supported.
4. Hanger Anchorages: Provide inserts, clips, bolts, screws and other devices applicable to the required method of structural anchorage for ceiling hangers. Size devices for 5x calculated load supported.

5. Furring Anchorages: 16 ga. galvanized wire ties, manufacturer's standard clips, bolts or screws as recommended by furring manufacturer.
 6. Option: Armstrong Flat Ceiling Suspension System or equal by USG.
- D. Protective Coating: All cold-formed steel members shall have coating conforming to AISI S220; ASTM A 653, G60 or coating with equivalent corrosion resistance of ASTM A653/A653M, G60. Galvannealed products are not acceptable

2.3 GYPSUM WALLBOARD TYPES

- A. Gypsum Wallboard: 1/2" thick and 5/8" thick as indicated on drawings, "Sheetrock" by USG, "Gold Bond" by National Gypsum, or "Regular Gypsum" by CertainTeed Corp., 48" wide, in maximum lengths available to minimize end-to-end butt joints.
- B. Fire-Rated Gypsum Wallboard: 1/2" thick and 5/8" thick as indicated on drawings, "Sheetrock Firecode C" by USG, "Firecheck Type C" by Lafarge/Continental, "Gold Bond Fireshield" by National Gypsum, or "Type C" and "Type X" by CertainTeed Corp., 48" wide, in maximum lengths available to minimize end-to-end butt joints.
- C. Water-Resistant Backing Board for Tile Finish: 5/8" thick, "DUROCK Glass Mat Tile Backerboard" by USG, "Dens-Shield Tile Backer Board" by Georgia Pacific, or "DiamondBack Tile Backer" by CertainTeed Corp. Cover joints with a pressure sensitive woven glass fiber tape equal to Imperial Type P Tape.
- D. Moisture/Mold-Resistant Gypsum Wallboard at locations listed below, unless otherwise shown on drawings: 1/2" thick and 5/8" thick as indicated on drawings, "Mold Tough" or "Mold Tough FR" by U.S. Gypsum, "DensArmor Plus" by Georgia Pacific, "Mold Defense" and/or "Mold Defense Type X" by Lafarge/Continental, or "Gold Bond EXP Interior Extreme Gypsum Board" by National Gypsum, 48" wide, in maximum lengths available to minimize end-to-end butt joints. Board must have a rating of 10 per ASTM D 3273 with a core that meets ASTM C 1396, Section 6 or ASTM C 1658.
 1. Areas in toilet rooms, lockers, janitor's closets not scheduled to receive ceramic tile, or where fire rating is required.
 2. Interior faces of exterior walls of basements, cellars and other below grade rooms.
 3. Walls and ceilings of spaces containing condensers, water tanks, water pumps and pressure reduction valves.
 4. Walls and ceilings of laundry rooms.
 5. Portions of walls within 2 feet of kitchen sinks to a height of 4 feet above the floor.
 6. Portions of walls within 2 feet of kitchen stoves to a height of 4 feet above the floor.
 7. Walls of bathrooms that are not solely water closet compartments, other than walls specifically required to be cement board.
 8. Walls and ceilings in service sink closets.

9. Portion of walls within 2 feet of mop sinks or service sinks to a height of 4 feet above the floor.
 10. All perimeter walls and wet shafts.
- E. Mold-Resistant Shaft Wall Liner: Solid gypsum board liner for shaft wall construction, 1" thick, 24" wide, as required to suit condition, by standard lengths as required, beveled edges. Provide "Mold Tough Liner Panel" by USG, "DensGlass Ultra Shaft Guard" by Georgia Pacific, "Mold Defense Shaftliner Type X" and/or "Weather Defense Shaftliner Type X" by Lafarge/Continental, "Gold Bond Brand Fireshield Shaft Liner XP," "Gold Bond Brand EXP Extended Exposure Shaft Liner" by National Gypsum, or "M2Tech Shaftliner" by CertainTeed Corp.
1. Liner board must have a rating 10 per ASTM D 3273 with a core that meets ASTM C 1396 Section 6.

2.4 ACCESSORIES

- A. Acoustical Insulation: Paper-less, non-combustible, semi-rigid mineral fiber mat, 2" thick, in walls (unless otherwise indicated), 3 lb./cu. ft. maximum density; Thermafiber LLC "Thermafiber," or approved equal.
- B. Fasteners for Wallboard: USG Brand Screws; Type S Bugle Head for fastening wallboard to lighter gauge interior metal framing (up to 20 ga.). Type S-12 Bugle Head for fastening wallboard to heavier gauge interior metal framing (20 ga. to 12 ga.); Type S and Type S-12 Pan Head for attaching metal studs to door frames and runners; and Type G Bugle Head for fastening wallboard to wallboard. Lengths specified below under "Part 3 - Execution" Articles and as recommended by drywall manufacturer.
1. For Portland cement base boards, fasteners shall be equal to Durock Steel Screws by U.S. Gypsum.
- C. Laminating Adhesive: "Sheetrock Brand Joint Compound."
- D. Metal Trim - Corner Beads: For 90 degree External Corners - ClarkDietrich; 103 Deluxe Cornerbead or "Dur-A-Bead" No. 103, 26 U.S. Std. ga. galvanized steel, 1-1/4" x 1-1/4", for 90 degree external corners.
- E. Metal Trim - Edge Beads: "Sheetrock Brand Paper Faced Metal Bead and Trim."
- F. Partition/Concrete Ceiling Trim: Trim-Tex Super Seal Tear Away or approved equal.
- G. Metal Trim Treatment Materials and Joint Treatment Materials for Gypsum Drywall Boards: Paper tape for joint reinforcing; Setting Type (Durabond 90) or Lightweight Setting Type Joint Compound for taping and topping; and Ready Mix Compound for finishing.
1. For mold-resistant drywall, water resistant drywall, and tile backer board, use glass mesh tape with setting joint compound that is rated 10 when tested in accordance with ASTM D 3273 and evaluated in accordance with ASTM D 3274. Acceptable joint compound is "Rapid Set One Pass" made by CTS Cement Manufacturing Corp. or "Rapid Joint" manufactured by Lafarge North America or approved equal meeting standards noted herein.

- H. Control Joints: ClarkDietrich; #093 Control Joint or No. 0.093, USG.
- I. Acoustical Sealant: USG "Acoustical Sealant" or "Tremco Acoustical Caulking" of Tremco Mfg. Co., Masterseal NP520 by BASF or approved equal.
- J. Neoprene Gaskets: Conform to ASTM D 1056.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where gypsum drywall is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. General

- 1. Install drywall work in accordance with drywall manufacturer's printed instructions and as indicated on drawings and specified herein.
- 2. All metal framing for drywall partitions shall extend from floor to underside of structural deck above. Provide for vertical deflection with positive mechanical connections of framing members to structure.
- 3. Provide concealed reinforcement, 16 ga. thick by eight (8) inches wide or as detailed or as recommended by manufacturer, for attachment of railings, toilet partitions, and other items to be supported on the partitions which cannot be attached to the metal framing members. Concealed reinforcement shall span between metal studs and be attached thereto using two (2) self-tapping pan head screws at each stud.
 - a. Back of drywall shall be scored or notched to prevent bulging out where reinforcement plate occurs.

- B. Fire-Rated Assemblies: Install fire-rated assemblies in accordance with requirements of authorities having jurisdiction, Underwriters' Laboratories and test results obtained and published by the drywall manufacturer, for the fire-rated drywall assembly types indicated on the drawings.

- C. Acoustical Assemblies: Install acoustically-rated assemblies to achieve a minimum STC as noted on drawings, in accordance with test results obtained and published by the drywall manufacturer, for the drywall assembly type indicated on the drawings.

D. Sealant

- 1. Install continuous acoustical sealant bead at top and bottom edges of wallboard where indicated or required for sound rating as wallboard is installed, and between metal trim edge beads and abutting construction.
- 2. Install acoustical sealant in 1/8" wide vertical control joints within the length of the wall or partitions, and in all other joints, specified below under "Control Joints." Install bead of

acoustical sealant around electric switch and outlet boxes, piping, ducts, and around any other penetration in the wallboard; place sealant bead between penetrations and edge of wallboard.

3. Where sealant is exposed to view, protect adjacent surfaces from damage and from sealant material, and tool sealant flush with and in same plane as wallboard surface. Sealant beads shall be 1/4" to 3/8" diameter.

E. Wallboard Application

1. Do not install wallboard panels until steel door frames are in place; coordinate work with Section 081113, "Steel Doors and Frames."
2. See drawings for all board types. Use fire-rated wallboard for fire-rated assemblies. Use water-resistant wallboard where indicated on drawings and where wallboard would be subject to moisture. Install water-resistant wallboard in full, large sheets (no scraps) to limit number of butt joints.
3. Apply wallboard with long dimension parallel to stud framing members, and with abutting edges occurring over stud flanges.
4. Install wallboard for partitions from floor to underside of structure above and secure rigidly in place by screw attachment, unless otherwise indicated.
5. Provide "Thermafiber" safing insulation meeting standards of Section 078413 at flutes of metal deck where partitions carry up to bottom of metal deck.
6. Neatly cut wallboard to fit around outlets, switch boxes, framed openings, piping, ducts, and other items which penetrate wallboard; fill gaps with acoustic sealant.
7. Where wallboard is to be applied to curved surfaces, dampen wallboard on back side as required to obtain required curve. Finish surface shall present smooth, even curve without fluting or other imperfections.
8. Screw fasten wallboard with power-driven electric screw driver, screw heads to slightly depress surface of wallboard without cutting paper, screws not closer than 3/8" from ends and edges of wallboard.
9. Where studs are doubled-up, screw fasten wallboard to both studs in a staggered pattern.

F. Cementitious Backer Board

1. General: Furnish cementitious backer board in maximum available lengths. Install horizontally, with end joints over framing members.
2. Fastening: Secure cementitious backer board to each framing member with screws spaced not more than 12 inches on center and not closer than 1/2" from the edge. Install screws with a conventional screw gun so that the screw heads are flush with the surface of the board.
3. Joint Treatment: Fill space between edge of backer and receptor with dry-set Portland cement or latex-Portland cement mortar. Fill all horizontal and vertical joints and corners

with dry-set Portland cement or latex-Portland cement mortar. Apply fiberglass tape over joints and corners and embed with same mortar.

- G. Metal Trim: Install and mechanically secure in accordance with manufacturer's instructions; and finish with three (3) coats of joint compound, feathered and finish sanded smooth with adjacent wallboard surface, in accordance with manufacturer's instructions.
1. Corner Beads: Install specified corner beads in single lengths at all external corners, unless corner lengths exceed standard stock lengths.
 2. Edge Beads: Install specified edge beads in single lengths at all terminating edges of wallboard exposed to view, where edges abut dissimilar materials, where edges would be exposed to view, and elsewhere where shown on drawings. Where indicated on drawings, seal joint between metal edge bead and adjoining surface with specified gasket, 1/8" wide minimum and set back 1/8" from face of wallboard, unless other size and profile indicated on drawings.
 3. Casing beads shall be set in long lengths, neatly butted at joints. Provide casing beads at juncture of board and vertical surfaces and at exposed perimeters.
- H. Control Joint Locations: Gypsum board surfaces shall be isolated with control joints where:
1. Ceiling abuts a structural element, dissimilar wall or other vertical penetration.
 2. Construction changes within the plane of the partition or ceiling.
 3. Shown on approved shop drawings.
 4. Ceiling dimensions exceed thirty (30) feet in either direction.
 5. Wings of "L," "U," and "T" shaped ceiling areas are joined.
 6. Expansion or control joints occur in the structural elements of the building.
 7. Shaftwall runs exceed 30' without interruption.
 8. Partition or furring abuts a structural element or dissimilar wall or ceiling.
 9. Partition or furring runs exceed 30' without interruption.
 10. Where control joints are required, ceiling height door frames may be used as control joints. Less than ceiling height frames shall have control joints extending to the ceiling from both corners.
- I. Joint Treatment and Spackling
1. Joints between face wallboards in the same plane, joints at internal corners of intersecting partitions and joints at internal corners of intersections between ceilings and walls or partitions shall be filled with joint compound.
 2. Screw heads and other depressions shall be filled with joint compound. Joint compound shall be applied in three (3) coats, feathered and finish surface sanded smooth with adjacent wallboard surface, in accordance with manufacturer's instructions. Treatment of

joints and screw heads with joint compound is also required where wallboard will be covered by finish materials which require a smooth surface, such as vinyl wall coverings.

3.3 FURRED WALLS AND PARTITIONS

- A. Use specified metal furring channels. Run metal furring channel framing members vertically, space sixteen (16) inches o.c. maximum. Fasten furring channels to concrete or masonry surfaces with power-driven fasteners or concrete stub nails spaced sixteen (16) inches o.c. maximum through alternate wing flanges (staggered) of furring channel. Furring channels shall be shimmed as necessary to provide a plumb and level backing for wallboard. At inside of exterior walls, an asphalt felt protection strip shall be installed between each furring channel and the wall. Furring channel and splices shall be provided by nesting channels at least eight (8) inches and securely anchoring to concrete or masonry with two (2) fasteners in each wing.
- B. Wallboard Installation: Same as specified under Article 3.4 - "Metal Stud Partitions."

3.4 METAL STUD PARTITIONS

- A. Unless otherwise noted, steel framing members shall be installed in accordance with ASTM C 754.
- B. Runner Installation: Use channel type. Align accurately at floor according to partition layout. Anchor runners securely sixteen (16) inches o.c. maximum with power-driven anchors to floor slab, with power-driven anchors to structural slab above. See "Stud Installation" below for runners over heads of metal door frames. Where required, carefully remove sprayed-on fireproofing to allow partition to be properly installed.
- C. Stud Installation
 - 1. Use channel type, positioned vertically in runners, spaced as noted on drawings, but not more than sixteen (16) inches o.c.
 - 2. Anchor studs to floor runners with screw fasteners. Provide snap-in or slotted hole slip joint bolt connections of studs to ceiling runners leaving space for movement. Anchor studs at partition intersections, partition corners and where partition abuts other construction to floor and ceiling runners with sheet metal screws through each stud flange and runner flange.
 - 3. Connection at ceiling runner for non-rated partitions shall be snap-in or slotted hole slip joint bolt connection that shall allow for movement. Seal studs abutting other construction with 1/8" thick neoprene gasket continuously between stud and abutting construction.
 - 4. Connections for fire rated partitions at ceiling runners shall conform to UL Design #2079.
 - 5. Install metal stud horizontal bracing wherever vertical studs are cut or wallboard is cut for passage of pipes, ducts or other penetrations, and anchor horizontal bracing to vertical studs with sheet metal screws.
 - 6. At jambs of door frames and borrowed light frames, install doubled-up studs (not back to back) from floor to underside of structural deck, and securely anchor studs to jamb anchors of frames and to runners with screws. Provide cross braces from hollow metal frames to underside of slab.

7. Over heads of door frames, install cut-to-length section of runner with flanges slit and web bent to allow flanges to overlap adjacent vertical studs, and securely anchor runner to adjacent vertical studs with sheet metal screws. Install cut-to-length vertical studs from runner (over heads of door frame) to ceiling runner sixteen (16) inches maximum o.c. and at vertical joints of wallboard, and securely anchor studs to runners with sheet metal screws.
 8. At control joints, in field of partition, install double-up studs (back to back) from floor to ceiling runner, with 1/4" thick continuous compressible gasket between studs. When necessary, splice studs with eight (8) inches minimum nested laps and attach flanges together with two (2) sheet metal screws in each flange. All screws shall be self-tapping sheet metal screws.
- D. Runners and Studs at Chase Wall: As specified above for "Runners" and "Studs" and as specified herein. Chase walls shall have either a single or double row of floor and ceiling runners with metal studs sixteen (16) inches o.c. maximum and positioned vertically in the runners so that the studs are opposite each other in pairs with the flanges pointing in the same direction. Anchor all studs to runner flanges with sheet metal screws through each stud flange and runner flange following requirements of paragraph 3.4, B. Provide cross bracing between the rows of studs by attaching runner channels or studs set full width of chase attached to vertical studs with one self-tapping screw at each end. Space cross bracing not over thirty-six (36) inches o.c. vertically.
- E. Wallboard Installation - Single Layer Application (Screw Attached)
1. Install wallboard with long dimension parallel to framing member and with abutting edge joints over web of framing member. Install wallboard with long dimension perpendicular to framing members above and below openings in drywall extending to second stud at each side of opening. Joints on opposite sides of wall shall be arranged so as to occur on different studs.
 2. Boards shall be fastened securely to metal studs with screws as specified. Where a free end occurs between studs, back blocking shall be required. Center abutting ends over studs. Correct work as necessary so that faces of boards are flush, smooth, true.
 3. Wallboard screws shall be applied with an electric screw gun. Screws shall be driven not less than 3/8" from ends or edges of board to provide uniform dimple not over 1/32" deep. Screws shall be spaced twelve (12) inches o.c. in the field of the board and 8" o.c. staggered along the abutting edges.
 4. All ends and edges of wallboard shall occur over screwing members (studs or furring channels). Boards shall be brought into contact but shall not be forced into place. Where ends or edges abut, they shall be staggered. Joints on opposite sides of a partition shall be so arranged as to occur on different studs.
 5. At locations where piping receptacles, conduit, switches, etc., penetrate drywall partitions, provide non-drying sealant and an approved sealant stop at cut board locations inside partition.
- F. Wallboard Installation - Double-Layer Application

1. General: See drawings for wallboard partition types required.
 2. First Layer (Screw Attached): Install as described above for single layer application.
 3. Second Layer (Screw Attached): Screw attach second layer, unless laminating method of attachment indicated on drawings or necessary to obtain required sound rating or fire rating. Install wallboard vertically with vertical joints offset thirty-two (32) inches from first layer joints and staggered on opposite sides of wall. Attach wallboard with 1-5/8" screws sixteen (16) inches o.c. along vertical joints and sixteen (16) inches o.c. in the field of the wallboard. Screw through first layer into metal framing members.
 4. Second Layer (Laminated): Install wallboard vertically. Stagger joints of second layer from first layer joints. Laminate second layer with specified laminating adhesive in beads or strips running continuously from floor to ceiling in accordance with manufacturer's instructions. After laminating, screw wallboard to framing members with 1-5/8" screws, spaced twelve (12) inches o.c. around perimeter of wallboard.
- G. Wallboard Installation - Laminated Application: Where laminated wallboard is indicated, use specified laminating adhesive, install wallboard vertically and maintain tolerances as specified for screw attached wallboard.
- H. Insulation Installation: Install where indicated on drawings. Place blanket tightly between studs.
- I. Deflection of Structure Above: To allow for possible deflection of structure above partitions, provide top runners for non-rated partitions with 1-1/4" minimum flanges and do not screw studs or drywall to top runner. Where positive anchorage of studs to top runner is required, anchorage device shall be by means of slotted hole (in clip connection with screw attachment to web of steel through bushings located in slots of clips), or other anchorage device approved by Architect.
- J. Control Joints
1. Leave a 1/2" continuous opening between gypsum boards for insertion of surface mounted joint.
 2. Back by double framing members.
 3. Attach control joint to face layer with 9/16" galvanized staples six (6) inches o.c. at both flanges along entire length of joint.
 4. Provide two (2) inch wide gypsum panel strip or other adequate seal behind control joint in fire rated partitions and partitions with safing insulation.

3.5 DRYWALL FASCIAS AND CEILINGS

- A. Furnish and install inserts, hanger clips and similar devices in coordination with other work.
- B. Secure hangers to inserts and clips. Clamp or bolt hangers to main runners.
- C. Space main runners 4'-0" o.c. and space hangers 4'-0" o.c. along runners, except as otherwise shown.

- D. Level main runners to a tolerance of 1/4" in 12'-0", measured both lengthwise on each runner and transversely between parallel runners.
- E. Metal Furring Channels: Space sixteen (16) inches o.c. maximum. Attach to 1-1/2" main runner channels with furring channel clips (on alternate sides of main runner channels). Furring channels shall not be let into or come in contact with abutting masonry walls. End splices shall be provided by nesting furring channels no less than eight (8) inches and securely wire tying. At any openings that interrupt the furring channels, install additional cross reinforcing to restore lateral stability.
- F. Mechanical accessories, hangers, splices, runner channels and other members used in suspension system shall be of metal, zinc coated, or coated with rust inhibitive paint, of suitable design and of adequate strength to support units securely without sagging, and such as to bring unit faces to finished indicated lines and levels.
 - 1. Provide special furring where ducts are over two (2) feet wide.
- G. Apply board with its long dimension at right angles to channels. Locate board butt joints over center of furring channels. Attach board with one (1) inch self-drilling drywall screws twelve (12) inches o.c. in field of board at each furring channel; eight (8) inches o.c. at butt joints located not less than 3/8" from edges.

3.6 SHAFT WALLS

- A. Runner Installation: Use "J" metal runners at floor and ceiling, with the short leg toward finish side of wall. Securely attach runners to structural supports with power-driven fasteners at both ends and twenty-four (24) inches o.c.
- B. Shaft Wall Liner: Cut shaft wall liner panels one (1) inch less from floor to ceiling height and erect vertically between J-runners.
- C. C-H Studs: Cut metal studs 3/8" to not more than 1/2" less than floor to ceiling height and install between shaft wall liner panels so that panels are fitted snugly into the one (1) inch wide "H," "T," or "I" portion of the stud. Space studs twenty-four (24) inches o.c., unless otherwise indicated on drawings. Install full-length steel E-Studs or J-runners vertically at T-intersections, corners, door jambs, and columns. Install full length E-Studs or J-runners over shaft wall liner both sides of closure panels. Frame openings cut within a liner panel with J-Runner around perimeter. For openings, frame with vertical E-Stud or J-runner at edges, horizontal runner at head and sill, and reinforcing as shown on the drawings. Suitably frame all openings to maintain structural support for wall. Install floor-to-ceiling steel E-Studs or J-runners each side of elevator door frames to act as strut-studs. Attach strut-stud to floor and ceiling runners with two (2) 3/8" Type S screws, space twelve (12) inches o.c. Over metal doors, install a cut to length section of runner and attach to strut-studs with clip angles and 3/8" Type S Screws space twelve (12) inches o.c.
- D. Wallboard Installation - Double Layer Installation: Erect gypsum wallboard base layer vertically or horizontally to meet fire rating on one side of studs with end joints staggered. Fasten base layer panels to studs with one (1) inch Type S screws twenty-four (24) inches o.c. Caulk perimeter of base layer panels. Apply gypsum wallboard face layer vertically over base layer with joints staggered and attached with 1-5/8" Type S screws staggered from those in base, spaced eight (8) inches o.c. and driven into studs.

- E. Wallboard Installation (Where Both Sides of Shaft Wall are Finished): Apply gypsum wallboard face layers vertically both sides of studs. Stagger joints on opposite partition sides. Fasten panels with one (1) inch or two (2) inches Type S screws spaced eight (8) inches o.c. in field and along edges into studs.
- F. Cants: Provide one (1) inch thick shaft wall liner, cut to suit condition, at beams and other projections wider than two (2) inches in elevator shafts. Cants shall slope seventy-five (75) degrees from the horizontal. Screw attach shaft wall liner to the vertical metal studs.
- G. Support elevator hoistway door frames independently of drywall shaft framing system, or reinforce system in accordance with system manufacturer's instructions.
- H. Where handrails are indicated for direct attachment to drywall shaft system, provide not less than a sixteen (16) ga. x eight (8) inches wide galvanized steel reinforcement strip, accurately positioned and secured to studs and concealed behind not less than one 1/2" thick course of gypsum board in the system.
- I. Integrate stair hanger rods with drywall shaft system by locating cavity of system as required to enclose rods.

3.7 ERECTION AT COLUMN ENCLOSURES

- A. Metal furring supports shall be provided under work of this Section, and shall be cut to lengths as necessary for tight fit such that spacing is not more than sixteen (16) inches o.c.
- B. Board shall be fastened securely to supports with screws as specified. Place boards in position with minimum number of joints. Where free ends occur between supports, back-blocking or furring shall be required. Center abutting ends over supports. Correct work as necessary so that faces of boards are flush, smooth and true. Provide clips or cross furring for attachment as required.
- C. All layers shall be screw attached to furring.
- D. When column finish called for on drawings to be in the same plane as drywall finish layer, maintain even, level plane.

3.8 FINISHING

- A. Taping: A thin, uniform layer of compound shall be applied to all joints and angles to be reinforced. Reinforcing tape shall be applied immediately, centered over the joint, seated into the compound. A skim coat shall follow immediately, but shall not function as a fill or second coat. Tape shall be properly folded and embedded in all angles to provide a true angle.
- B. Filling: After initial coat of compound has hardened, additional compound shall be applied, filling the board taper flush with the surface. The fill coat shall cover the tape and feather out slightly beyond the tape. On joints with no taper, the fill coat shall cover the tape and feather out at least four (4) inches on either side of the tape. No fill coat is necessary on interior angles.
- C. After compound has hardened, a finishing coat of compound shall be spread evenly over and extending slightly beyond the fill coat on all joints and feathered to a smooth, uniform finish. Over tapered edges, the finished joint shall not protrude beyond the plane of the surface. All taped angles shall receive a finish coat to cover the tape and taping compound, and provide a

true angle. Where necessary, sanding shall be done between coats and following the final application of compound to provide a smooth surface, ready for painting.

- D. Fastener Depressions: Compound shall be applied to all fastener depressions followed, when hardened by at least two (2) coats of compound, leaving all depressions level with the plane of the surface.
- E. Finishing Beads and Trim: Compound shall be applied to all bead and trim and shall be feathered out from the ground to the plane of the surface. When hardened, this shall be followed by two (2) coats of compound each extending slightly beyond the previous coat. The finish coat shall be feathered from the ground to the plane of the surface and sanded as necessary to provide a flat, smooth surface ready for decoration.
- F. Except as otherwise noted, level of finish for surface exposed to view shall conform to Level 4 of ASTM C 840 and GA-214 of the Gypsum Association.
 - 1. For drywall boards with fiberglass facing, provide Level 5 finish of ASTM C 840 and GA-214.
- G. Drywall construction with defects of such character which will mar appearance of finished work, or which is otherwise defective, will be rejected and shall be removed and replaced at no expense to the Owner.

3.9 CLEANING AND ADJUSTMENT

- A. At the completion of installation of the work, all rubbish shall be removed from the building leaving floors broom clean. Excess material, scaffolding, tools and other equipment shall be removed from the building.
- B. Work shall be left in clean condition ready for painting or wall covering. All work shall be as approved by Architect.
- C. Cutting and Repairing: Include all cutting, fitting and repairing of the work included herein in connection with all mechanical trades and all other trades which come in conjunction with any part of the work, and leave all work complete and perfect after all trades have completed their work.

3.10 PROTECTION OF WORK

- A. Installer shall advise Contractor of required procedures for protecting drywall work from damage and deterioration during remainder of construction period.

END OF SECTION

SECTION 093013 - CERAMIC TILING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the ceramic tiling as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Floor tile.
 - 2. Wall tile and matching base.
 - 3. Stone saddles.
 - 4. Setting beds, grout and sealant.
 - 5. Waterproofing membrane.

1.3 RELATED SECTIONS

- A. Gypsum Drywall – Section 092900.

1.4 REFERENCES

- A. ANSI A108 Series/A118 Series - American National Standards for Installation of Ceramic Tile.
- B. ANSI A136.1 - American National Standards for Organic Adhesives for Installation of Ceramic Tile.
- C. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar.
- D. ASTM C 150 - Standard Specification for Portland Cement.
- E. TCNA - Handbook for Ceramic, Glass and Stone Tile Installation; Tile Council of North America, latest 2017 Edition.
- F. ISO 13007 - International Standards Organization; classification for Grout and Adhesives.
- G. LFT Tile – Large Format Tile, tile 15” or larger in any one direction and/or 144 sq. inch in size.

1.5 QUALITY ASSURANCE

- A. Qualifications of Installers: For cutting, installing and grouting of ceramic tile, use only thoroughly trained and experienced journeyman tile setters who are completely familiar with the requirements of this work, and the recommendations contained in the referenced standards, and

the installers are Certified Ceramic Tile Installer (CTI) through the Ceramic Tile Education Foundation (CTEF) or Tile Installer Thin Set Standards (ITS) verification through the University of Ceramic Tile and Stone.

- B. Codes and Standards: In addition to complying with all pertinent codes and regulations, comply with the following:
 - 1. Manufacture all tile in accordance with Standard Grade Requirements of ANSI A-137.1.
 - 2. Install all ceramic tile in accordance with the recommendations contained in Handbook for Ceramic, Glass and Stone Tile Installation of the Tile Council of North America, Inc., latest edition noted herein and ANSI A108/A118/A136.
- C. All surfaces shall have a minimum wet DCOF AcuTest value of 0.42 and tested per ANSI A326.3 Dynamic Coefficient of Friction of Hard Surface Flooring Materials.

1.6 SUBMITTALS

- A. Samples
 - 1. Before any tile is delivered to the job site, submit to the Architect sample panels, approx. 12" x 12", mounted on hardboard back-up with selected grout color for each color and pattern of ceramic tile and grout specified.
 - 2. Submit 6" length of stone saddles.
 - 3. Submit 12" x 12" samples of waterproofing membrane.
- B. Master Grade Certificates: Prior to opening ceramic tile containers, submit to the Architect a Master Grade Certificate, signed by an officer of the firm manufacturing the ceramic tile used, and issued when the shipment is made, stating the grade, kind of tile, identification marks for tile containers, and the name and location of the project.
- C. Mock-ups
 - 1. At an area on the site where approved by the Architect, provide a mock-up ceramic tile installation.
 - a. Make the mock-up approximately 3'-0" x 3'-0" in dimension.
 - b. Provide one mock-up for each type, class, and color of installation required under this Section.
 - c. The mock-ups may be used as part of the Work, and may be included in the finished Work, when so approved by the Architect.
 - d. Revise as necessary to secure the Architect's approval.
 - 2. The mock-ups, when approved by the Architect, will be used as datum for comparison with the remainder of the work of this Section for the purposes of acceptance or rejection.
 - 3. If the mock-up panels are not permitted to be part of the finished Work, completely demolish and remove them from the job site upon completion and acceptance of the work of this Section.

1.7 PRODUCT HANDLING

A. Delivery and Storage

1. Deliver all materials of this Section to the job site in their original unopened containers with all labels intact and legible at time of use.
2. Store all materials under cover in a manner to prevent damage and contamination; store only the specified materials at the job site.

B. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.

C. Maintain temperatures at not less than 50 deg. F. in tiled areas during installation and for 7 days after completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Tile: Obtain tile of each type and color or finish from single source or producer.

1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.

B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from single manufacturer and each aggregate from single source or producer.

1. Obtain setting and grouting materials, except for unmodified Portland cement and aggregate, from single manufacturer.
2. Obtain waterproof/crack isolation membrane, except for sheet products, from manufacturer of setting and grouting materials.

C. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer:

1. Stone thresholds.
2. Waterproof membrane.

3. Metal edge strips.
- 2.2 TILE
 - A. Provide tile as scheduled on the drawings.
 - 2.3 TRIM AND SPECIAL SHAPES
 - A. Provide external and internal corners, trim shapes at openings, and all other trim and special shapes to match the tile specified herein, as required by field conditions and drawing details.
 - 2.4 STONE SADDLES
 - A. Provide sound stone saddles as selected by the Architect, minimum 3/4" thick, with an abrasive hardness of not less than 10.0, when tested in accordance with ASTM C 241. Cut saddle to fit jamb profile, honed finish.
 - 2.5 MORTAR BED, BOND COAT AND GROUT
 - A. Portland Cement: ASTM C 150, Type I.
 - B. Hydrated Lime: ASTM C 207, Type S.
 - C. Sand: ASTM C 144, clean and graded natural sand.
 - D. Reinforcing for Mud Set Systems: 2" x 2" x 16/16 ga. welded wire mesh.
 - E. Latex Modified Mortar Bed
 1. Laticrete 3701 Fortified Mortar Bed
 2. MAPEI, "4 to 1 Mud Bed Mix" with "Planicrete AC"
 3. Pro Spec, Floor Mud with B-710 SBR Acrylic Additive.
 4. SikaLevel 050 Rapid Slope
 5. Bostik, Mud in a Bag with 425 latex admixture
 6. Custom Building Products Thick Bed Mortar and Thin-set Mortar Admix
 - F. Latex Admixture for Mortar Bed
 1. MAPEI, Planicrete AC, blended with a 3:1 site mix.
 2. Laticrete 333.
 3. Pro Spec – Acrylic Additive.
 4. Custom – Custom Crete Thin Set Additive.
 - G. Latex – Portland Cement Bond Coat, complying with ANSI A118.4 and ISO 13007, C2ES2P2 with minimum compressive strength of 400 psi.

1. MAPEI, Keralastic System thin set mortar, consisting of Kerabond dry-set mortar and Keralastic latex admixture.
 2. Laticrete; 211 dry-set mortar and 4237 latex admixture.
 3. Pro Spec – Permalastic System consisting o Permalastic Dryset Mortar and Permalastic Admixture
 4. Custom – Pro-Lite.
- H. Improved Modified Cement Mortars, complying with ANSI 118.15 and ISO 13007, CSES2PS.
1. Custom Building Products; Mega-Lite Crack Prevention Mortar (650-725 psi).
 2. Laticrete; 220 Marble Granite Mortar (500-540 psi).
 3. Mapei; Kerabond T Keralastic (400-600 psi).
 4. Pro Spec; StayRlex 590 (460 psi).
- I. Wall and Base Tile
1. Over drywall use ANSI A136.1-1967 Organic Adhesive for installation of Ceramic Tile, Type I and ISO 13007 D2TE. Shear strength shall be 50 psi minimum. Adhesive primer as recommended by adhesive manufacturer. Manufacturer shall certify, in writing, that adhesive and primer used are proper types for the intended tile types and application. Conform to TCA Detail W-242.
 - a. MAPEI Type 1 Mastic.
 - b. Laticrete Premium 15 Adhesive.
 - c. ProSpec B-1000 Tile Adhesive.
 - d. Custom Relia Bond Adhesive
 2. Over masonry and concrete use a mortar bed leveling coat conforming to ANSI A108.1A followed by a Latex Portland Cement Bond Coat, MAPEI, Kerabond/Keralastic System, Custom Mega Flex or equal by Laticrete or Pro Spec, conforming to ANSI A118.4, ISO 13007-C2ES2P2, and TCA Detail W-211.
 3. Over cement board use a Latex Portland cement mortar bond coat, MAPEI, Kerabond/Keralastic System, Custom Mega Flex or equal by Laticrete or Pro Spec, conforming to ANSI A118.4, ISO 13007-C2ES2P2, and TCA Detail W-244; coat back of board with waterproof membrane as specified below.
 4. Over glass mat water resistant gypsum backer board use a Latex Portland cement mortar bond coat, MAPEI, Kerabond/Keralastic System, conforming to ANSI A118.4, ISO 13007-C2ES2P2, and TCA Detail W-245.
- J. Floor Tile and Stone Saddle - Mud Set: Set floor tile and stone saddle using Portland Cement mortar setting bed conforming to ANSI A108.1A and latex modified Portland cement bond coat, Basis of Design, Laticrete 254 Platinum, MAPEI, Keraflex Super, Customs Pro-Lite, SikaTile 350 Flex Set, conforming to ANSI A118.15, ISO 13007-C2ES1P1, and TCNA Detail F-112.

1. For installation of (LFT and Stone Tile), Improved Modified Cement Mortars and medium bed, Basis of Design, Laticrete MultiMax Lite, MAPEI, Ultraflex LFT, Customs Mega-Lite, SikaTile 475 LHT Premium Set, Bostik BAM conforming to ANSI 118.15, ISO 13007-C2ES1P1.
- K. Floor Tile and Stone Saddle - Waterproof Setting Bed: Set floor tile and stone saddle using thin set latex Portland cement bond coat, Basis of Design, MAPEI, Kerabond/Keralastic System, conforming to ANSI A118.4, ISO 13007-C2ES2P2, and waterproofing membrane conforming to TCA Detail F-122/122A.
1. For installation of (LFT), Improved Modified Cement Mortars and medium bed, Basis of Design, MAPEI, Kerabond/Keralastic System conforming to ANSI 118.15, ISO 13007-C2ES2P2
- L. Waterproofing Membrane complying with ANSI A118.10 and ANSI A118.12; and having IAPMO certification as a shower pan liner: "Mapelastic Aquadefense" by MAPEI with factory blended "Bio-Block Antimicrobial", "Laticrete 9235 with Microban" made by Laticrete International, ProSpec B6000 or Custom 9240.
1. Reinforce membrane with polyester fabric.
- M. Water: Clean, fresh and suitable for drinking.
- N. Grout complying with A118.7; and ISO 13007, CG2WAF: For grouting ceramic tile, provide a commercial Portland cement grout "Ultracolor Plus FA" (additive not required) made by MAPEI or equal by Laticrete or Custom or approved equal; (addition not required); color as selected by the Architect. Add latex additive to grout made by same manufacturer as grout.
- O. Physical Properties: The setting beds and grouts must meet the following physical requirements:
1. Compressive Strength – 3000 psi min.
 2. Shear Bond Strength – 500 psi min.
 3. Water Absorption – 4.0% max.
 4. Service Rating (ASTM C 627) – Extra Heavy Duty.
- P. Sealer: Seal all grout joints and all unglazed tile using "Sealer's Choice 15 Gold" by Aqua Mix Inc.
- Q. Temporary Protective Coating: Either product indicated below that is applied in the tile manufacturer's factory and formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile, mortar, and grout products; and easily removable after grouting is completed without damaging grout or tile.
1. Petroleum paraffin wax, applied hot, fully refined and odorless, containing at least 0.5 percent oil with a melting point of 120 to 140 deg. F. per ASTM D 87.
 2. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as temporary protective coating for tile.

- R. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, equal to "Concentrated Stone & Tile Cleaner" made by Aqua-Mix or approved equal, specifically approved for materials and installations indicated by tile and grout manufacturers.

2.6 SEALANT

- A. Joint Backing: Preformed, compressible, resilient, non-extruding, non-staining strips of foam neoprene, foam polyethylene, or other material recommended by sealant manufacturer.
- B. Bond Breaker: Polyethylene tape, 3 mils thick or other material recommended by sealant manufacturer.
- C. Sealant Primer: Colorless, non-staining, or type to suit substrate surface, as recommended by sealant manufacturer.
- D. Sealant: One-part silicone based sanitary sealant, conforming to ASTM C 920, Type S, Grade NS, Class 25. Sealant hardness upon full cure shall be between 20-30 Shore "A" Durometer. Color of sealant to blend with or match adjacent materials, and as selected by the Architect. Sealant shall be equivalent to 1700 Sanitary Sealant made by General Electric or approved equal.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where ceramic tile is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 CONDITION OF SURFACES

- A. Allowable Variations in Substrate Levels in Floors: + 1/8" in 10'-0" distance and 1/4" total max. variation from levels shown.
- B. Grind or fill concrete and masonry substrates as required to comply with allowable variations.
- C. Concrete substrates must meet ANSI A108.01 tolerances and surface textures in preparation for tile work. Coordinate with concrete trades.

3.3 PREPARATION

- A. Coordinate the following with Section 033000:
 - 1. Steel trowel and fine broom finish concrete slabs that are to receive ceramic tile. Cure concrete slabs that are to receive tile before tile application. Do not use liquid curing compounds or other coatings that may prevent bonding of tile setting materials to slabs. Slab shall be dry at time of tile installation.
 - 2. Tile floors with floor drains must have a slope to direction of 1/4" per foot; coordinate this with concrete trades.

- B. Etch concrete substrate as may be required to remove curing compounds or other substances that would interfere with proper bond of setting bed. Rinse with water to remove all traces of treatment.
- C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved samples. If not factory blended, either return to manufacturer or blend tiles at project site before installing.
- D. Field Applied Temporary Protective Coating: Pre-coat tile with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.4 JOINTS IN TILE WORK

- A. Joint Widths: 1/16" wide in ceramic tile.
- B. Alignment: Wall, base and floor joints shall align through the field and trim. Direction and location of all joints as directed by Architect.
- C. Movement Joints: Conform to TCA Detail EJ171. Locate where movement joints are in back-up material. Provide movement joint at joints between mop receptors and ceramic tile. Provide movement joint at all vertical internal joints of wall tile. Movement joints 1/8" wide in ceramic tile. Fill all movement joints with specified backing and sealant. Use bond breaker where sufficient space for joint backing does not exist.
 - 1. Provide sealant between ceramic tile and plumbing fixtures, mirrors, pipes, countertops and other dissimilar materials penetrating or adjacent to ceramic tile.

3.5 INSTALLATION

- A. Comply with the following installation standards:
 - 1. Wall tile over drywall using organic adhesive - ANSI A136.1 and ISO 13007, D2TE.
 - 2. Wall tile over cement board or glass mat backer board using dry set mortar with latex additive - ANSI A118.4 and ISO 13007, C2ES2P2.
 - 3. Wall tile over masonry or concrete using dry set mortar with latex additive - ANSI A118.4 and ISO 13007, C2ES2P2.
 - 4. Floor tile using full mud set mortar - ANSI A118.4, A228.15, and ISO 13007, C2ES2P2.
 - 5. Floor tile using dry set mortar with latex additive - ANSI A118.4, A118.15, and ISO 13007, C2ES2P2.
 - 6. Floor tile over waterproofing membrane - ANSI A118.4, 118.5, and ISO 13007, C2ES2P2.
- B. Backs of tile must be cleaned before installation.
- C. All setting beds and/or adhesives shall provide for an average contact area of not less than 95% coverage.

- D. Allowable Variations in Finished Work: Do not exceed the following deviations from level and plumb, and from elevations, locations, slopes and alignment shown.
1. Floors: 1/8" in 10'-0" run, any direction; +/- 1/8" at any location; 1/32" offset at any location.
 2. Walls: 1/8" in 8'-0" run, any direction; 1/8" at any location; offset at any location, 1/32".
 3. Joints: +/- 1/32" joint width variation of any location; 1/16" in 3'-0" run deviation from plumb and true.
- E. Waterproofing Membrane
1. Install the membrane in strict accordance with manufacturer's written recommendations.
 2. Upon completion of work, test horizontal membrane for leaks by flood testing per ASTM D 5957. Inspect for leakage. Make necessary adjustments to stop all leakage and retest until watertight. If membrane is not immediately covered by another surface, provide protection until membrane is covered.
- F. Handle, store, mix and apply setting and grouting materials in compliance with the manufacturer's instructions.
- G. Extend tile work into recesses and under equipment and fixtures, to form a complete covering without interruptions. Terminate work neatly at obstructions, edges and corners without disruption of pattern or joint alignment.
- H. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight, aligned joints. Fit tile closely to electrical outlets, piping and fixtures so that plates, collars, or covers overlap tile.
- I. Lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls and trim are the same size. Lay out tile work and center tile fields both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths.

3.6 INSTALLATION OF STONE SADDLES

- A. Install stone saddles cut to profiles and sizes shown, accurately fitted to jambs, coped at stops, set in full bed of mortar herein specified, and with grouted edge joints as specified for floor tile.

3.7 CLEANING AND PROTECTION OF CERAMIC TILE

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
1. Remove grout residue from tile as soon as possible.
 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use cleaners only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush

surfaces with clean water before and after cleaning to insure removal of all cleaning material.

3. Remove temporary protective coating by method recommended by coating manufacturer and that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent drain clogging.
- B. Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. Apply coat of sealer to all grout joints and all unglazed tile.
- C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- D. Before final inspection, remove protective coverings from tile surfaces.
- E. Leave finished installation clean and free of cracked, chipped, broken, unbonded or otherwise defective tile work.

END OF SECTION

SECTION 096283 GLASS FLOOR PANELS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the structural glass floor system as shown on the drawings and/or specified herein.
 - 1. Structural glass floor assembly to be custom designed, engineered, detailed, factory fabricated, and site erected.

1.3 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Floor panels shall be capable of supporting loads in accordance with local building codes and regulations.
- C. Thermal Movement: Panels shall be capable of withstanding expansion and contraction caused by a temperature range from 14 deg. C to 500 deg. C without stress on glass units or edge seal failure.

1.4 SUBMITTALS

- A. Shop Drawings: Submit assembly instructions and detailed shop drawings for the glass floor system. Indicate methods of construction, location and spacing of anchorage, joinery, sizes, shapes, thickness and alloy materials, structural laminated glass units, and relationship to adjoining work.
 - 1. Shop drawings to be stamped and sealed by same engineer as mentioned in 1.4 (C) below.
- B. Samples: Submit 12-inch-square samples of the glass units and representative samples of accessory members.
- C. Submit design calculations and data signed and sealed by a Professional Engineer licensed in New York indicating how panels are constructed and installed to meet performance criteria.

1.5 STORAGE AND HANDLING

- A. Store materials in a dry place, off the ground.
- B. Handle materials to prevent damage to finished surfaces. Do not install components that have been damaged or stained.

- C. Upon completion of installation, protect work from damage caused by ensuing work of other trades.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Glass Floor System: Provide glass floor assembly designed and fabricated by Glass Flooring Systems, Inc., or equivalent installation by Greenlite Glass Systems, IBP "GlassWalk" SG System as manufactured by Innovative Building Products, Inc., or approved equal.

2.2 MATERIALS

- A. Glass: Laminated glass fabricated by bonding two or more glass panes with transparent, flexible interlayer material in accordance with ASTM C 1172. Laminated glass shall meet requirements of ANSI Z97.1 and CPSC 16 CFR to qualify as safety glass.
 - 1. Fabricate laminated glass for floor panels from either ASTM C 1036 annealed, ASTM C 1048 Kind HS heat strengthened, or ASTM C 1048 Kind FT fully tempered glass as determined by manufacturer to accommodate Project design and performance requirements specified herein.
 - 2. Color of Glass: As selected by the Architect.
 - 3. Glass Floor Panel Thickness: Determined by glass floor manufacturer to accommodate Project design and performance requirements specified herein.
 - 4. Clean cut glass units to required sizes. Edges exposed to view after installation shall be highly polished with arised corners and edges.
- B. Secondary Metal Support Framing:
 - 1. Secondary Framing Sections: Provide metal framing to support glass floor panels as detailed on Drawings and approved shop drawings.
 - 2. Material: Cold-formed from stainless steel complying with ASTM A 167, Type 304 with brushed satin finish.
- C. Structural Sealant Glazing:
 - 1. Provide glazing accessories, anchors, and fasteners of type and size recommended by glass floor manufacturer and as required for complete, functional installation.
 - 2. Contact Structural Sealant: High performance, two component, non-sag, neutral cure, ultraviolet resistant, silicone sealant designed for structural glazing and complying with ASTM C 920 and C 1184.
 - 3. Sealant Backing: Provide backing as recommended by sealant manufacturer and complying with ASTM C 1330. Backing shall be greater than joint opening by 25 percent minimum.

4. Setting Blocks and Spacers: Compatible with silicone sealant, complying with ASTM C 864, and recommended by sealant manufacturer.
5. Masking Tape: Non-staining, non-absorbent type compatible with silicone sealant and adjacent surfaces.
6. Cleaners and Primers: Recommended by sealant manufacturer to be compatible with substrate and glazing materials.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where the glass flooring panels are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.
- B. Verify all applicable field dimensions and adjust as necessary to accommodate the floor system.

3.2 INSTALLATION

- A. Assemble the floor system according to instructions furnished by the manufacturer into prepared containment opening. Top surface of glass units shall finish flush with adjoining surface and exposed aluminum joints, unless otherwise shown on the drawings.
- B. Apply sealant to completely fill channel around each glass unit and joints between aluminum grid members and wipe flush with top surface. Perform all sealant work in accordance with applicable requirements.

3.3 CLEANING

- A. Clean all exposed surfaces of glass with clean, soft cloth and mild hand soap using gentle rubbing action. Do not use abrasive or solvent-type cleaners, detergents, or paint removers.

END OF SECTION

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SECTION 096313 BRICK FLOORING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the brick flooring as shown on the drawings and/or specified herein, including but not limited to, the following:
 - 1. Brick flooring over existing brick floor in Porch 124.
 - 2. Mortar and grout.
 - 3. Sealant for expansion and control joints.
 - 4. Floor finish.

1.3 RELATED SECTIONS

- A. Selective Demolition and Alteration Work - Section 024119.
- B. Unit Masonry – Section 042000.
- C. Masonry Restoration and Cleaning – Section 049000.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an Installer who has successfully completed within the last 3 years at least 3 brick flooring applications similar in type and size to that of his project and who will assign mechanics from these earlier applications to this project, of which one will serve as lead mechanic.
- B. Single Source Responsibility: Provide materials obtained from one source for each type of setting material and joint material.
- C. Source Quality Control: Do not change source or brands of brick or mortar or grout materials during course of the work.
- D. Field-Constructed Mock-Up: Prior to installation of brick flooring work, fabricate mock-up panel using materials, bond and joint treatment indicated for final work. Build panel at site where directed, of full thickness and approx. 4' x 3', unless otherwise indicated. Provide range of color, texture and workmanship to be expected in completed work. Obtain Architect's acceptance of visual qualities of panel before start of brick flooring work. Retain panel during construction as a standard for judging completed work.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each manufactured product, including certification that each product complies with specified requirements. Include instructions for handling, storage, installation and protection of each product.
- B. Samples for Initial Selection Purposes: Submit manufacturer's color charts consisting of sections of actual brick flooring units showing full range of colors and textures available in products complying with requirements.
 - 1. Include samples of full range of grout colors available.
- C. Samples for Verification Purposes: Submit samples made up of actual brick flooring units for each type, color and texture required. Include in each set of samples the full range of exposed color and texture to be expected in the completed work.
 - 1. Provide samples with joints grouted and cured showing the full range of color to be expected in the completed work.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Protect masonry materials during storage and construction against wetting by rain, snow or ground water and against soilage or intermixture with earth or other materials.
- B. Protect grout and mortar materials from deterioration by moisture and temperature. Store in a dry, ventilated location above ground or in waterproof containers. Keep containers tightly closed and away from open flames.

1.7 PROJECT CONDITIONS

- A. Environmental Conditions: Comply with mortar/grout manufacturer's printed directions for maintaining environmental conditions in installation areas during and after installation, including ambient temperatures and relative humidity, substrate temperature and ventilation. Do not use mortars/grout using Portland cement when temperature of surfaces, substrates and materials are below 50 deg. F.

PART 2 PRODUCTS

2.1 BRICK

- A. Provide reclaimed and restored solid brick pavers of size and thickness as noted on drawings, color and texture as selected by the Architect to match approved sample.

2.2 MATERIALS FOR APPLICATION OVER EXISTING BRICK FLOORING

- A. Materials for installing and grouting brick pavers shall be Portland cement/sand mortar gauged with Latex Setting Liquid and Latex Admixture as manufactured by Laticrete International, Inc., Boiardi, or approved equal.
 - 1. Portland cement - ASTM C150 - Type 1, light color.

2. Aggregate for cement setting beds: Sand as recommended in ASTM C398, uniformly graded from coarse to fine, with 100% passing the No. 4 sieve and not more than 5% passing the No.100 sieve.
 3. Latex Additives: As manufactured by Laticrete International or Boiardi, provide Laticrete 4237 or Boiardi 753 Setting Liquid and Laticrete 3701 or Boiardi 150 grout and mortar admixture. Installation shall be in strict accordance with manufacturer's instructions.
 4. Colored Pigmented Grout: Manufacturer's standard factory-prepackaged mixture of cement, fine aggregates and color-fast pigments formulated for mixing with liquid latex admixture; provide color as selected by the Architect. Provide products manufactured by Laticrete or Boiardi.
- B. Reinforced mesh where required shall be 2" x 2" x 16 ga. welded galvanized reinforcing mesh complying with ASTM A185.
- C. Sealant and related materials shall conform to the following:
1. For sealant provide a 2-part polyurethane sealant complying with Fed. Spec. TT-S-00227, Class A, Type 2, equal to "Dymeric" made by Tremco, or approved equal made by Mameco or Pecora. Color of sealant as selected by the Architect.
 2. Back-up rod shall be "Ethafoam" or approved equal.
 3. Prime joints using primer recommended by sealant manufacturer.
- D. Sealer: Clear "Strong Guard" as manufactured by Hillyard Chemical Co., or approved equal.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where brick flooring is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 CONDITION OF SURFACE

- A. Allowable Variations in Substrate Levels
1. Floors: +/- 1/8" in 10'-0" distance and 1/4" total max, variation from levels shown.
- B. Grind or fill concrete and masonry substrates as required to comply with allowable variations.

3.3 PREPARATION

- A. Etch concrete substrate as may be required to remove curing compounds or other substances that would interfere with proper bond of mortar. Rinse with water to remove all traces of treatment.
- B. Seal substrate with sealer as recommended by manufacturer of mortar.

3.4 INSTALLATION

- A. Allowable Variations in Finished Work: Do not exceed the following deviations from level and plumb, and from elevations, locations, slopes and alignment shown
 - 1. Floors: 1/8" in 10'-0" run, any direction; + 1/8" at any location; 1/32" offset at any location.
 - 2. Joints: + 1/32" joint width variation of any location; 1/16" in 3'-0" run deviation from plumb and true.
- B. General
 - 1. Do not use brick with chips, cracks, voids, discolorations, and other defects which might be visible or cause staining in the finished work.
 - 2. Cut brick with motor-driven saw equipment designed to cut masonry with clean, sharp, unchipped edges. Cut units as required to provide pattern shown and to fit adjoining work neatly. Use full units without cutting wherever possible.
 - 3. Set brick in the patterns shown with uniform joints of the width of 3/8".
 - 4. Tolerances: Maintain surface plane for finished brick flooring not exceeding a tolerance of 1/8" in 10' when tested with a 10 ft. straightedge.
 - 5. Wet brick several hours before laying in accordance with brick manufacturer's instructions.
- C. Application
 - 1. Preparation of Subbase: Clean concrete subbase to remove dirt, dust, debris, film or curing compound, and loose particles. Saturate concrete subbase with clean water several hours before placing setting bed. About one hour prior to placing setting bed, remove surface water.
 - 2. Mortar bed shall consist of the following
 - a. Slurry Bond Coat
 - 1). 1 bag Portland cement
 - 2). 100 lbs. Sand (30-60 mesh)
 - 3). 5 gal. Latex Setting Liquid (adjust quantity to proper consistency)
 - b. Joint Grout Mix
 - 1). 50 lb. dry joint filler of color to meet with Architect's approval
 - 2). 1 gal. Latex Admix (adjust quantity of liquid to proper consistency)
 - c. Thick Bed Mortar
 - 1). 1 bag Portland cement
 - 2). 3 cu. ft. coarse sand (ASTM C33)
 - 3). 3 gal. Latex Admix (adjust quantity to proper consistency)
 - 3. Mixing
 - a. Machine Mixing: Mixer shall be a rotating blade type mortar mixer. Place Laticrete Liquid in mixer, start machine and add sand, then cement. Mix only long enough to

wet out the batch. Do not over-mix. Stop mixer and dump mortar from mixer promptly.

- b. Hand Mixing: Pre-mix the dry ingredients (sand and cement). Place Laticrete Liquid in clean container or mixing box, add dry material and mix. Adjust amount of liquid or dry material to obtain trowelable consistency.

D. Setting

1. Bed thickness shall be as detailed on drawings. The prepared mortar shall be spread approx. 1/2 the desired bed thickness and then 2" x 2" x 16 ga., welded, galvanized reinforcing mesh shall be laid. The wire shall be lapped 3" and additional mortar shall then be placed on top of the wire to bring the bed to the desired thickness. The mortar shall be rodded and compacted with a steel trowel.
2. Before placing the brick, on a green or wet screed bed, a slurry coat shall be applied to the mortar bed using a flat trowel. Thickness of the bond coat shall be approx. 1/16". A skim coat shall be applied to the back of each paver just prior to placing on the bed.
3. Brick shall be placed in the wet slurry coat before the surface dries. Uniform joints shall be maintained with a nominal width of 3/8".
4. After each piece is laid, brick shall be beat in with a wooden block or rubber mallet to level the surface and embed the brick. Beating shall be done before mortar takes initial set.
5. Surface shall be pitched as shown on drawings.

- E. Joint Treatment: After all paver units have been set and setting bed is thoroughly cured, brush all joints clean. Thoroughly wet raked out portion of joint and then fill solid with colored joint grout. Strike joint neatly and tool to a dense, slightly concave surface, flush with paver surface. Do not fill expansion or control joints with joint grout. The Contractor may, at his option, butter edges of pavers as they are laid with grout mix and tool joints as described herein. Grouting of joints as done in tile work is not permitted; every effort must be made to keep grout and mortar off wearing surface.

F. Cleaning

1. Excess materials shall be cleaned from the stone surface with water immediately as the work progresses. Cleaning shall be done while mortar is fresh and before it hardens on the surface.
2. Difficult to clean cement film or mortar shall be immediately removed from the finished work using TC-50 Cleaner made by Laticrete, and a nylon buffing pad.

- G. Control and Expansion Joints: Control and expansion joints shall be installed where brick abut restraining surfaces such as walls, curbs, columns, etc., and directly over any joints in the structural slab and other areas noted on drawings. Joints shall be filled with sealant and back-up rod in accordance with the requirements of Section 079200.

3.5 REPAIR, POINTING, CLEANING AND PROTECTION

- A. Remove and replace masonry units which are loose, chipped, broken, stained, or otherwise damaged, or if units do not match adjoining units. Provide new units to match adjoining units and install in fresh mortar or grout, pointed to eliminate evidence of replacement.

- B. Pointing: During the tooling of joints, enlarge voids or holes and completely fill with mortar or grout. Point-up joints at sealant type joints to provide a neat, uniform appearance, properly prepared for application of sealant.
- C. Cleaning: Remove excess mortar/grout from exposed brick surfaces, wash and scrub clean.
- D. Remove wax protective coating using methods as recommended by brick manufacturer.
- E. Sealing: After cleaning, apply sealer to brick flooring and, when dry, apply a second coat of sealer following manufacturer's instructions. Do not apply sealer until brick flooring is completely dry.
- F. Provide final protection and maintain conditions which ensure brick flooring work being without damage or deterioration at time of substantial completion.

END OF SECTION

SECTION 096345 STONE DOOR SILLS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the stone door sills as shown on the drawings and/or specified herein including, but not limited to, the following:
 - 1. Door sills
 - 2. Stainless steel anchoring and setting bed.

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following shop drawings for Architect's approval.
 - 1. For Stone: Submit complete cutting and setting drawings to Architect for approval. Show sizes, shapes, thicknesses, jointing, anchoring, connection with other work, typical and special anchoring details, supports, dimensions, setting numbers, and color range for stone. Clearly indicate dimensions for locating cutouts in stone. Do not fabricate any stone tops (except for samples) until shop drawings have been approved by the Architect.
- B. Samples
 - 1. Stone: Submit 3 sets of 12" x 12" samples of stone. Include full range of color and texture to be expected. Architect will review for color and texture only. Compliance with all other requirements is the exclusive responsibility of the Contractor.
 - 2. Anchoring and Fastening Devices: Submit 3 samples of each type of anchoring and fastening device.

1.4 PRODUCT DELIVERY, STORAGE & HANDLING

- A. Protect stone during storage and construction against wetting, soiling, staining and damage.
- B. Handle stone to prevent chipping, breakage, soiling or other damage. Do not use pinch or wrecking bars without protecting edges of stone with wood or other rigid materials.
- C. Store stone on wood skids or pallets, covered with non-staining, waterproof membrane. Place and stack skids and stones to distribute weight evenly and to prevent breakage or cracking of stones. Protect stored stone from weather with waterproof, non-staining covers or enclosures, but allow air to circulate around stones.

PART 2 PRODUCTS

2.1 MATERIALS

A. Stone

1. Stone Quality and Characteristics: All stone shall be of best quality, sound stock, and carefully selected; uniform in color, pattern, markings, texture and finish; and free from defects impairing strength, durability or appearance such as cracks, seams, mineral stains, flaws, or imperfections which are not a normal characteristic of the stone. Patching or filling of chips or cracks is not permitted. Delivered stone shall match the approved samples, and any stone not matching the approved sample may be rejected by the Architect as unfit. Size and thickness of stone units as indicated on drawings.
2. Stone: Stone shall be bluestone in minimum 3/4" thick, with an abrasive hardness of not less than 10.0, when tested in accordance with ASTM C 241. Cut saddle to fit jamb profile, honed finish unless otherwise shown

B. Setting materials per 093000.

PART 3 EXECUTION

3.1 INSTALLATION OF STONE SADDLES

- A. Install stone saddles cut to profiles and sizes shown, accurately fitted to jambs, coped at stops, set in full bed of mortar specified in 093000, and with grouted edge joints as specified in 093000.

3.2 REPAIR, CLEANING AND SEALING

- A. Remove and replace stone units which are broken, chipped, stained or otherwise damaged. Where directed, remove and replace units which do not match adjoining stonework. Patching or hiding chips or cracks in stone will not be permitted. Provide new matching units, install as specified and reseal joints to eliminate evidence of replacement. Reseal defective and unsatisfactory joints to provide a neat, uniform appearance.

3.3 PROTECTION

- A. After installation and cleaning, protect stone work from damage during subsequent construction activities.
- B. Provide protection for finished work such as exposed edges, corners, and all other stone liable to physical injury or staining. Protection shall include, but is not limited to, non-staining approved coverings.

END OF SECTION

SECTION 096400 WOOD PLANK AND STRIP FLOORING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the wood strip flooring, as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Wood plank flooring.
 - 2. Wood strip flooring.
 - 3. Plywood subflooring.
 - 4. Accessories.
 - 5. Sleepers, as required.
 - 6. Field finishing of wood flooring.

1.3 RELATED SECTIONS

- A. Restoration, Reuse, and Refinishing of Wood Plank and Strip Flooring – Section 090160
- B. Wood Frame Construction – Section 061000.
- C. Carpentry - Section 062000.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Specialized wood flooring firm with not less than ten (10) years' successful experience in installation of types specified, and acceptable to manufacturer of wood flooring.
- B. General Standard: Comply with recommendations of National Wood Flooring Association (WFA) Installation Guidelines.
- C. Source Quality Control: Obtain flooring of each type from single manufacturer or source, to ensure match of quality, color, pattern and texture.
- D. Field-Constructed Mock-Up: Prior to installing wood flooring and trim, construct mock-ups for each form of construction and finish required to verify selections made under Sample submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mock-ups to comply with the following requirements, using materials indicated for completed work.

1. Build mock-ups of wood flooring and each type of trim, in the form, dimensions, and location designated by the Architect.
 2. Notify Architect one week in advance of the dates and times when mock-ups will be erected.
 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 4. Modify or reinstall mock-ups as required to obtain Architect's acceptance. Simulate finished lighting conditions for reviewing mock-ups.
 5. Obtain Architect's acceptance of mock-ups before start of final unit of work.
 6. Retain and maintain mock-ups during construction in undisturbed condition as a standard for judging completed unit of work. When directed, demolish and remove mock-ups from project site, except that accepted in place mock-ups in undisturbed condition at the time of Substantial Completion may become part of completed unit of work.
- E. The Contractor shall furnish a letter from the adhesive manufacturer stating that the subfloor substrate has been tested for moisture vapor transmission and that the moisture vapor transmission levels do not exceed the manufacturers' recommendations.
- F. All surfaces shall have a minimum wet DCOF AcuTest value of 0.42.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's detailed technical product data and installation instructions for each type of wood flooring. Include instructions for handling, storage, installation, finishing, protection and maintenance.
- B. Shop Drawings: For each type of floor product, assembly, and accessory. Include plans, sections, and attachment details. Include expansion provisions and trim details.
- C. Samples: Submit 24" long sets of range samples for wood flooring;
 1. Include six (6) inch samples of base.
- D. Mock-Ups: Include two (2) iterations for WD-7 to match WD-6. Include two (2) iterations for WD-2 to match "scrubbed look."

1.6 DELIVERY, STORAGE AND HANDLING

- A. Moisture Content: At time of delivery, limit average moisture content of wood flooring to 6%, with 8% maximum for any piece.
- B. Protect wood flooring from excessive moisture in shipment, storage and handling. Deliver in unopened cartons or bundles and store in a dry place, with adequate air circulation. Do not deliver material to building until "wet work" such as concrete and plaster have been completed and cured to a condition of equilibrium.

1.7 PROJECT CONDITIONS

- A. Conditioning: Do not proceed with installation of wood flooring until spaces have been enclosed. Building must be dry with all wet work (i.e. concrete, plaster, drywall, fireproofing) completed. Further, the building HVAC system must be operating and the space shall have been at the expected ambient temperature and relative humidity for five days. Condition wood for five (5) days prior to start of installation by placing in spaces to receive flooring and maintaining ambient conditions in which it will be used before, during and after installation. Open packages of wood flooring which are sealed to permit natural adjustment of moisture content.

1.8 SPECIAL PROJECT WARRANTY

- A. Submit three (3) year warranty signed by Manufacturer and Contractor agreeing to repair or replace wood flooring which shrinks, warps, cracks, or otherwise deteriorates excessively, or which breaks its anchorage or bond with substrate or otherwise fails to perform as required, due to failures of materials and/or workmanship and not due to unusual exposure to moisture or other abusive forces or elements not anticipated for application.

PART 2 PRODUCTS

2.1 WOOD MATERIALS

- A. Wood strip flooring shall be as scheduled on the drawings. Flooring strips shall be tongued-and-grooved and end-matched; back face of each strip shall be back channeled. Strips shall be standard random lengths, complying with grading rules. Wood shall be kiln-dried and moisture content of wood at time of installation shall not exceed 8%.
 - 1. Heart Pine Plank: 2 categories to match existing types, reclaimed wood, 5" to 6" and 8" to 10" wide boards, stained, sealed and finish coated.
 - 2. White Pine Strip: 2" to 2-1/2" white pine strips, stained, sealed, and finish coated.
 - 3. Mahogany Plank: 6" to 10" wide boards, 1" X 1" pegs to match existing.
- B. Provide wood flooring products by experienced wood flooring vendors / installers with restoration and fine custom finishing skills. Vendors include:
 - 1. Carlisle Fine Hardwood Floors
Leo Robittaille
 - 2. Franklin Floors
Drew Rydingsword
(203) 910-5418
 - 3. Hudson Company
Wayne Dickinson
(212) 981-4598
- C. Subflooring: One (1) layer of OSB by Advantech; nominally 5/8" thick by 4' x 8'.

- D. Wood Trim: Where indicated to match wood flooring, provide wood base board molding, base shoe molding and stair risers of same species and grade as wood flooring. Provide wood stripping, nosings, saddles and thresholds, as indicated in or adjacent to wood flooring, of same species, grade and cut as wood flooring.
- E. Sleepers (Where required to meet floor elevations): Wood sleepers shall be Construction Grade Douglas Fir, 2" x 3" x 4'-0" pressure treated with water-borne preservatives complying with AWPB LP-2 (0.23 lbs./cu. ft. of chemical in wood). After treatment, kiln dry to a maximum moisture content of 16%. Treatment shall be equal to "Wolmanized Natural Select" by Arch Wood Protection Inc.

2.2 WOOD FIELD FINISHING

- A. Floor Finishing Systems: Provide water-based urethane floor finish equal to Bona Chromastain (custom mix), then clear seal stain and 3 coats finish with urethane, or equal made by Hillyard Chemical Co., or MinWax. Final color and sheen to be mocked-up
 - 1. All finish coats to be BONA Traffic HD Raw, 3 coats required or equal.
 - 2. See Mock-Ups required.

2.3 ACCESSORIES

- A. Fasteners:
 - 1. Provide square head exposed flooring nails at 8" to 10-1/2" blend of reclaimed heart pine, WD-2.
 - 2. Provide concealed nail fasteners at 5" to 6" blend, WD-2, and white pine 2-1/4", WD-7.
 - 3. Provide concealed and peg fasteners at Mahogany, WD-8.
 - 4. All fasteners to follow "Installation Guidelines Manual" by NWFA.
- B. Cork Expansion Strip: Composition cork expansion strip.
- C. Vapor Barrier: Eight (8) mils polyethylene.
- D. Mastic: Cut black asphalt type.
- E. Acoustic Sealant: As recommended by flooring manufacturer.
- F. Perimeter Isolation: 3/8" thick fiberglass board, 6 - 15 pcf.
- G. Sound Control Mat: "Geniemat RST-05," 1/4" thick as manufactured by Pliteq or "QT SCU Sound Control Mat," 1/4" thick, made by Ecore International or approved equal. Bond with adhesive and vapor retarder specified herein.
- H. Self-Leveling Underlayment: "DSP-520" by H. B. Fuller or approved equal.
- I. Adhesive

1. For adhering wood strip floor to OSB sub-floor provide Bona adhesive, Bostik “Best” or “Dri Tac 7500” by Dri Tac Flooring Products.
2. For adhering OSB panels to each other provide “Dri Tac 6200” by Dri Tac Flooring Products.
3. For adhering acoustic mat to concrete slab provide the following:
 - a. Dri Tac 8000 Moisture Guard.
 - b. Dri Tac 7500 Eco-Urethane over moisture guard.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where wood strip flooring is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 PREPARATION

- A. Concrete Slabs: Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.
 1. Moisture Testing: Perform tests so that each test area does not exceed 200 sq. ft., and perform no fewer than two tests in each installation area and with test areas evenly spaced in installation areas.
 - a. Perform anhydrous calcium chloride test per ASTM F 1869, as follows:
 - 1). Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb. of water/1000 sq. ft. in 24 hours.
 2. Relative Humidity Testing
 - a. Perform relative humidity testing using in situ probes according to ASTM F2170. Proceed with installation only after substrate have a maximum 75% relative humidity level.
- B. Remove coatings, including curing compounds, and other substances on substrates that are incompatible with installation adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- C. Broom or vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION (GENERAL)

- A. General: Comply with flooring manufacturer's instructions and recommendations to match existing systems, but not less than recommended by NWFA "Installation Guidelines."

- B. Pattern: Comply with pattern or direction of pattern for laying wood flooring to match existing, or as directed by Architect.
- C. Expansion Space: Provide expansion space at walls and other obstructions and terminations of flooring, not less than 1/4". Fill expansion space with flush cork expansion strip. Nail shoe molding or other trim to baseboard, rather than to flooring.
- D. Wood plank and strip flooring shall be securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16" out of plane.

3.4 INSTALLATION OVER ACOUSTIC UNDERLAYMENT

- A. Lay sound control mat under entire areas to be covered by wood flooring and firmly seat in vapor retarder and adhesive and apply mat in accordance with manufacturer's recommendations. Roll surfaces to insure total adhesion free of bubbling, lifting, etc. Reset areas not totally adhered.
 - 1. Install vapor retarder and adhesive following manufacturer's instructions.
- B. Prior to installing wood floor, full adhesion bond between adhesive and underlayment mat must be attained.
- C. In order to isolate the floor and break sound transmission path between floor and walls, install polyethylene foam or fiberglass board at the perimeter of the entire subfloor and around any protrusions through the installation. Tape or tack-glue the isolation material.
- D. Sub-flooring shall be one or two layers of OSB flooring panels to meet final floor finish elevations. Conditions vary. If two layers are required, the two layers shall be laid at 90 degrees to one another, with a 1/4" gap left between the ends and edges of all panels. Edges and ends of each layer shall be offset by 24". The two layers shall be glued and screwed to one another with trowel applied, full coverage Dri Tac 6200 adhesive and 1" long No. 8 screws spaced 6" o.c. around the panel edges and ends and 12" o.c. in the field. Screws shall be placed 1/4" to 1" from panel edges and ends. The subfloor shall float on sound deadening acoustic mat.
- E. At 2-1/4" strip flooring, blind nail and glue flooring to OSB spacing nails 6" o.c. with one nail within 2" of each end of each strip.
- F. At plank flooring square head nails are to match existing.
 - 1. Fasteners for blind nailing must be sized so that they cannot penetrate into the acoustic underlayment mat.
 - 2. In addition to nailing, wood strip flooring shall be adhered to OSB substrate, adhesive shall be trowel applied, full coverage polyurethane as specified herein.
- G. Wood Trim: Nail baseboard to wall and nail shoe molding to other trim to baseboard; do not nail to flooring.

3.5 INSTALLATION OF WOOD FLOORING OVER OSB

- A. Set 4'-0" x 8'-0" sheets of OSB sub-floor as follows:

1. Stagger panel joints allowing approximately 1/8" expansion space around all panels to prevent edge peaking due to compression caused by panel swell.
 2. Allow 3/4" minimum expansion space at all vertical obstructions.
 3. Panels shall be mechanically fastened using NWFA approved fasteners.
 4. Fasten 2" from the edge every 6" to 8" along the perimeter of the sheet and one fastener or more spaced every 12" in the interior of the panel. Fasten the center first to prevent the sub-floor from bowing.
- B. Cover OSB with 30 lb. asphalt felt lapping ends and edges 4".
- C. Nail finish wood flooring to OSB substrate as noted above in Para. 3.2.

3.6 SANDING AND FINISHING SYSTEM

- A. Sand installed unfinished flooring to remove offsets and ridges, cups, and sanding marks which would be visually noticeable after finishing. Use three (3) grades of sandpaper, ending with 00 grade. Vacuum clean and immediately apply 3-part finishing system. Do not permit traffic on floor after sanding and until finish is completed. Cover sanded floor with building paper to provide access for application of first finish coats.
- B. Immediately after proper sanding, tack rag with clean-up solution. Apply a stain, stain sealer, and 3 coats of clear HD Traffic finish coats. Allow to dry thoroughly between layers of the finish process. Sand floors using NOFMA/MFMA procedures. Tack rag with clean-up solution. Apply a second and third coat of clear finish in same manner.

3.7 PROTECTION, CLEANING AND REPAIRS

- A. Clean floors by vacuuming and dry sweeping. Do not wet or damp mop floors. Examine all floors for damage and make necessary repairs. If damage is irreparable, remove and replace affected strips at no additional cost to the Owner.
- B. Protect completed wood flooring during remainder of construction period with heavy Kraft paper or other suitable covering, so that flooring and finish will be without damage or deterioration at time of acceptance.

END OF SECTION

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SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the resilient tile flooring, as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Rubber base.
 - 2. Accessories.

1.3 RELATED SECTIONS

- A. Gypsum Drywall - Section 092900.

1.4 QUALITY ASSURANCE

- A. Qualifications of Installers: Use only personnel who are thoroughly trained and experienced in the skills required and completely familiar with the requirements established for this work.

1.5 SUBMITTALS

- A. Manufacturer's Data: For information only, submit manufacturer's technical information and installation instructions for type of resilient tile.
- B. Samples: Submit six (6) inch long samples of base and strips.

1.6 DELIVERY AND STORAGE

- A. Deliver materials to the project site in the manufacturer's original unopened containers, clearly marked to indicate pattern, gauge, lot number and sequence of materials.
- B. Carefully handle all materials and store in original containers at not less than seventy (70) degrees F. for at least forty-eight (48) hours before start of installation.

1.7 JOB CONDITIONS

- A. Continuously heat spaces to receive base to a temperature of seventy (70) degrees F. for at least forty-eight (48) hours prior to installation, whenever project conditions are such that heating is required. Maintain seventy (70) degrees F. temperature continuously during and after installation as recommended by the manufacturer, but for not less than forty-eight (48) hours. Maintain a temperature of not less than fifty-five (55) degrees F. in areas where work is completed.

PART 2 PRODUCTS

2.1 RUBBER BASE

- A. Provide 4" high by 1/8" thick continuous vulcanized SBR rubber top set cove base with pre-formed internal and external corner pieces, color as scheduled on the drawings. For areas to receive carpet, provide flat base, no cove. Base shall conform to ASTM F 1861, Type TS, Group 1 (solid) as manufactured by Tarkett/Johnsonite, Nora, Roppe, or approved equal.

2.2 ACCESSORIES

- A. Adhesives: Waterproof, stabilized type, as recommended by the tile manufacturer for the type of service indicated.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where resilient base is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. In all spaces where base is indicated, install bases tight to walls, partitions, columns, built-in cabinets, etc., without gaps at top or bulges at bottom, with tight joints and flush edges, with molded corner pieces at internal and external corners. Provide end stops adjacent to flush type door frames and where base does not terminate against an adjacent surface. Keep base in full contact with walls until adhesive sets.

3.3 CLEANING AND PROTECTION

- A. Remove any excess adhesive or other surface blemishes from base using neutral type cleaners as recommended by the manufacturer.

END OF SECTION

SECTION 096519 - RESILIENT TILE FLOORING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the resilient tile flooring, as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Tile.
 - 2. Transition strips.
 - 3. Accessories.

1.3 QUALITY ASSURANCE

- A. Qualifications of Installers: Use only personnel who are thoroughly trained and experienced in the skills required and completely familiar with the requirements established for this work.

1.4 SUBMITTALS

- A. Manufacturer's Data: For information only, submit manufacturer's technical information and installation instructions for type of resilient tile.
- B. Samples
 - 1. Submit full-size sample tiles for each type and color required, representative of the expected range of color and pattern variation. Sample submittals will be reviewed for color, texture and pattern only. Compliance with all other requirements is the exclusive responsibility of the Contractor.
 - 2. Submit six (6) inch long samples of transition strips.
- C. Submit manufacturer's warranty as noted herein.
- D. Mock-ups: Provide minimum 3'-0" x 3'-0" mock-up showing transitions and base for each type of resilient tile flooring, in a location as directed by the Architect. The mock-ups may be used as part of the Work, and may be included in the finished Work, when so approved by the Architect.

1.5 DELIVERY AND STORAGE

- A. Deliver materials to the project site in the manufacturer's original unopened containers, clearly marked to indicate pattern, gauge, lot number and sequence of materials.

- B. Carefully handle all materials and store in original containers at not less than seventy (70) degrees F. for at least forty-eight (48) hours before start of installation.

1.6 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F. or more than 95 deg F., in spaces to receive floor tile during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F. or more than 95 deg F.
- C. Close spaces to traffic during floor tile installation.
- D. Close spaces to traffic for 48 hours after floor tile installation.
- E. Install floor tile after other finishing operations, including painting, have been completed.

1.7 WARRANTY

- A. Provide manufacturer's 5-year limited warranty.

PART 2 - FIELD CONDITIONS

PRODUCTS

2.1 TILE

- A. See finish schedule.

2.2 ACCESSORIES

- A. Adhesives: Waterproof, stabilized type, as recommended by the tile manufacturer for the type of service indicated.
- B. Concrete Slab Primer: Non-staining type recommended by the tile manufacturer.
- C. Leveling Compound: Latex/Portland cement flash patching and leveling compound equal to No. DSP-520 made by H.B. Fuller or No. 226 with 3701 admixture made by Laticrete or equal made by Mapei, or approved equal.
- D. Edging/Transition Strips: See transition details.
- E. Finishing Materials: Cleaners and sealers as recommended by flooring manufacturer.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where resilient tile flooring is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 CONDITION OF SURFACES

- A. Allowable Variations in Substrate Levels (Floors): $\pm 1/8"$ in 10'-0" distance and 1/4" total maximum variation from levels shown.
- B. Grind or fill concrete substrates as required to comply with allowable variation.

3.3 PREPARATION

- A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F 710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
 - 3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
 - 4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor tile manufacturer's written recommendations, but not less stringent than the following:
 - a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb. of water/1000 sq. ft. in 24 hours.
 - b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have a maximum **75** percent relative humidity level.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install floor tiles until they are the same temperature as the space where they are to be installed.
 - 1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.

- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.4 INSTALLATION

- A. Install tile only after all finishing operations, including painting, have been completed and permanent heating system is operating. Moisture content of concrete slabs, building air temperature and relative humidity must be within limits recommended by tile manufacturer.
- B. Place tile units with adhesive cement in strict compliance with the manufacturer's recommendations. Butt tile units tightly to vertical surfaces, thresholds, nosings and edgings. Scribe around obstructions and to produce neat joints, laid tight, even and in straight, parallel lines. Extend tile units into toe spaces, door reveals, and into closet and similar openings.
- C. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on the finish tile as marked in the subfloor. Use chalk or other non-permanent marking devices.
- D. Lay tile from center marks established with principal walls, discounting minor off-sets, so that tile at opposite edges of the room are of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis, unless otherwise shown.
- E. Match tiles for color and pattern by using tile from cartons in the same sequence as manufactured and packaged. Cut tile neatly to and around all fixtures. Broken, cracked, chipped or deformed tile is not acceptable.
- F. Tightly cement tile to sub-base without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks through tile, or other surface imperfections.
- G. Lay tile with grain in all tile running in the same direction.
- H. Place resilient edge strips tightly butted to tile and secure with adhesive. Provide edging strips at all unprotected edges of tile, unless otherwise shown.

3.5 CLEANING AND PROTECTION

- A. Remove any excess adhesive or other surface blemishes from tile, using neutral type cleaners as recommended by the tile manufacturer. Protect installed flooring from damage by use of heavy Kraft paper or other covering.
- B. Finishing: After completion of the project and just prior to the final inspection of the work, thoroughly clean tile floors and accessories. Apply finishing materials as recommended by flooring manufacturer.

END OF SECTION

SECTION 096816 – SPECIALTY CARPETING AND FLOOR CLOTH

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, luon underlayment, padding, seam sewing and sealing, equipment, and services necessary to complete the Specialty Floor Cloth and carpeting provided by Owner as shown on the drawings and/or specified herein.

1.3 RELATED SECTIONS

- A. Restoration, Reuse, and Refinishing of Wood Plank And Strip Flooring - Section 090160.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Firm with not less than ten (10) years of experience in installation of Historic specialty carpeting of type, quantity and installation methods similar to work of this Section. Only pre-qualified Owner and manufacturer approved installers may be used on this project.

- 1. Acceptable Carpet Installers:

- a. Ingrain Carpet (Richard Clanton) 717-341-6212.
 - b. Brian Grosvenor 513-241-4209.
 - c. Ruggles Workroom Inc. 844-742-7429.

- 2. Acceptable Floor Cloth installers:

- a. Eagle Restoration (Hunter McCall) 626-825-3211.
 - b. Jamie Lanford, jlanfordinc@yahoo.com
 - c. Contact Gwen Jones for others if required, gwen@arielgracedesign.com.

- B. General Terminology/ Information Standard: Refer to current edition of "Carpet Specifier's Handbook" by The Carpet and Rug Institute; for definitions of terminology not otherwise defined herein, and for general recommendations and information.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's complete technical product data for each type of carpet padding, underlayment, and accessory item required.
- B. Shop Drawings: Submit carpet and floor cloth layout and seaming drawings provided by each fabricator "sewn to plan," clearly indicating carpet directions, locations and methods of jointing seams including stitching, sewing, sealing edges, and locations and types of edge strips. Indicate columns, doorways, enclosing wall/partitions, built-in cabinets and locations where cut-outs are required in carpet.

1.6 PRODUCT DELIVERY AND STORAGE

- A. Deliver carpeting, padding, and underlayment materials in original mill protective wrapping with mill register numbers and tags attached. Store inside, in well ventilated area, protected from weather, moisture and soiling.

1.7 WARRANTY

- A. The Contractor shall promptly repair seams and edges in the carpet as required, for a period of two (2) years after Substantial Completion of the Project. The exact time for this work shall be left to the discretion of the Owner. Fourteen (14) day notice for repairs shall be given by the Owner, so that the Contractor can make the necessary arrangements.

PART 2 PRODUCTS

2.1 CARPETING AND FLOOR CLOTH

- A. Owner furnished. Contractor to provide safe dry place to store materials, all preparation, padding, sewing and seaming, luan underlayment, and installation.
- B. Coordinate timing and delivery of products with general construction and installation durations.

2.2 ACCESSORIES

- A. Provide heart pine hardwood, reducers and threshold plates where required. They shall be sized to be compatible with the thickness of the carpet, in a finish to match flooring. The profile and type shall be as required by site conditions, as is the custom of the trade, and installation shall be ADA compliant.
- B. Adhesive: Provide installation as recommended by the carpet manufacturer if required. Provide adhesive which complies with flame spread rating required for the carpet installation, if any.
- C. Underlayment: Provide padding and luan underlayment installed as per manufacturer's instructions. Luan seams and staple or nail points to be flash patched.
- D. Leveling: Ensure existing hardwood floors meet or exceed the manufacturer's requirements for levelness and flatness. Provide 1/8" thick Luan installed as per the floor cloth manufacturer's specifications, including seam treatment.
- E. Brass Stair Rod System: Decorative Stair Hardware is to be supplied by Owners and installed by contractor.
- F. Padding: Provide padding as recommended by carpet manufacturer.
- G. Miscellaneous Materials: Provide the types of seaming, adhesives and tape, sewn seamings, thread, edge sealant, and other accessory items recommended by the carpet manufacturer and Installer for the conditions of installation and use.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where carpeting and specialty floor cloth is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 PRE-INSTALLATION REQUIREMENTS

- A. Floor shall be clean and free of large cracks and protrusions. Protrusions must be sanded down smooth, the floor cleanly swept and vacuumed if necessary to remove all dust and grit.
- B. Floor temperature shall be 65 deg., at least 24 hours prior to installation; and 48 hours after carpet is installed.
- C. Sequence carpeting with other work so as to minimize possibility of damage and soiling of carpet during remainder of construction period.

3.3 INSTALLATION

A. General

- 1. Comply with manufacturer's instructions and recommendations. Place seams in the directions as accepted on manufacturer's "sewn to plan" diagrams and shop drawings. Maintain pattern matching, direction of pattern and texture, including lay of carpeting.
- 2. Extend carpet under open-bottomed and raised-bottom obstructions, and under removable flanges of obstructions. Extend carpet into closets and alcoves of rooms, unless another floor finish is indicated for such spaces. Extend carpet under all movable furniture and equipment, unless otherwise indicated.
- 3. Provide cut-outs for removable access devices in the substrate. Bind sealed edges as neatly as possible and secure both sides of cuts to the substrate. Use double-faced tape on carpet cut-outs which must be lifted from the substrate to gain access to the devices. Cut only three (3) sides wherever it is feasible to provide a carpet flat in lieu of a fully-removable cutout.

B. Carpet Installation

- 1. Select location for a starting seam according to the manufacturer's instructions; strike a chalk line on the floor at this point. (Use white chalk; colored chalk should not be allowed on the job.)
- 2. Check the carpet for pattern match, direction, and for pile lay.
- 3. After checking for direction and pattern, unroll sequential length and seam match.
- 4. Depending on product, the carpet edge at baseboards, hearth stones, and saddles, may be trimmed according to the manufacturer's recommendations.
- 5. Install per Wilton Carpet recommendations and use specified pre-qualified installers as approved by the manufacturer.

6. Carpets to be installed in closets in rooms with salvaged remnants.

3.4 FLOOR CLOTH INSTALLATION

- A. Ariel Grace floor cloth installers are pre-qualified to install the floor cloth after Luan underlayment is installed, inspected, and cleaned.

3.5 CLEANING UP

- A. Upon completion of the carpeting installation in each area, visually inspect all carpet installed in that area and immediately remove all dirt, soil, and foreign substance from the exposed face; inspect all adjacent surfaces and remove all marks and stains caused by the carpet installation; remove all packaging materials, carpet scraps, and other debris from the carpet installation to the area of the job site set aside for its storage.
- B. Usable carpet pieces shall be turned over to the Owner.

3.6 PROTECTION

- A. Provide temporary, protection against soiling or damage of carpet for the remainder of the construction period.

3.7 OWNER'S INSTALLATION EXHIBITS

- A. Wilton Guidelines.
- B. Eaton Hill Textiles.

<<CONTINUED ON THE NEXT PAGE>>

Gaskell Mackay and Grosvenor Wilton Installation Guidelines

- All the carpet should be sewn to plan, no other method of seaming is acceptable.
- The underfelt should be a traditional underfelt or a combination underlay of felt and crumb rubber, these underlays allow for the sewn joins to bed down into the felt. They also allow the floor under the carpet and underfelt to breath.
- The carpet must be stretch fitted onto carpet gripper; we do not recommend sticking the carpet.
- All cut edges of the carpet should be treated with an edge sealer or finished with a blind taped edge.
- If subfloor uneven, plywood recommended.

Eaton Hill Textiles Installation Guidelines

- **Staircase:** To be installed with brass stair rods at each tread.
- **Second Floor Hall:** Two pieces sewn together and blind tacked.
- **Traditional rubber backed padding** laid below carpet

END OF SECTION

SECTION 097200 WALLCOVERING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, preparation and lining papers, materials, equipment and services necessary to complete the Owner furnished wallcovering as shown on the drawings and/or specified herein.

1.3 RELATED SECTIONS

- A. Restoration and Treatment of Historic Plaster – Section 090120.
- B. Gypsum wallboard - Section 092900.
- C. Painting and Finishing - Section 099000.

1.4 QUALITY ASSURANCE

- A. Qualifications of Installers: For actual cutting and installation of wallcovering, use only thoroughly trained and experienced installers completely familiar with the installation recommendations of the manufacturer of the wallcovering used and completely familiar with the requirements of this work.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver and store all wallcovering in undamaged condition as packaged by the manufacturer, with manufacturer's seal and labels intact. Exercise care to prevent damage during delivery, handling and storage. Store all materials flat in a clean, dry area with maintained temperature above 40 deg. F.

1.6 ENVIRONMENTAL CONDITIONS

- A. Wallcovering should be installed only when normal temperature and humidity conditions approximate the same conditions that will exist when the building is occupied.
- B. Areas to receive wallcovering shall be a constant temperature of 70 deg. F. measured at base elevation and shall be maintained for 72 hrs. before, during and 48 hrs. after the application.
- C. Remove wallcovering from its packaging and allow to acclimatize to the area of installation 24 hrs.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Owner furnished decorative wallpapers. Contractor to provide all preparation, liners, adhesives, and other materials for complete and proper installation according to the manufacturer's instructions.
- B. Wall covering materials are cotton and paper, custom printed to match historical patterns.

2.2 ACCESSORIES

- A. Adhesive: Historic print wall covering adhesive acceptable to the manufacturer or approved equal. Commercial adhesives are NOT recommended.
 - 1. Use either wheat paste mixed by hand or use a premixed clear paste such as Shur Stik 44 or 780, Golden Harvest 14 or 34 (GH-14 or GH-34) or Romans Professional 880 or 838 or Dynamite 234. For plain painted papers a mixture of 7.5% wheat paste to 25% cellulose is recommended.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where the wallcovering is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 PREPARATION

- A. Surfaces to receive wallcovering shall be free from grit, loose particles and surface irregularities and shall meet the minimum requirements established by the wallcovering manufacturer. Fill all cracks and holes in plaster with patching compound and sandpaper smooth to a level 4 finish.
- B. Prime and seal substrates in accordance with the wallcovering manufacturer's recommendations for the type of substrate materials to be covered.
 - 1. Plaster: Prime with a non-pigmented acrylic wallcovering primer.
 - 2. Raw Sheetrock: Prime with one coat alkyd oil or one coat wall-protecting sealer such as Gardz (from Zinsser) or Draw-Tite (from Scotch Paint) followed by an acrylic wallcovering primer. Alternatively, "Fresh Start" primer from Benjamin-Moore, in either an alkyd or acrylic formulation may be used as the first coat, followed by an acrylic wallcovering primer.
 - 3. Painted Walls (sheetrock or plaster): Painted walls should be examined to ensure that the paint film is sealed, sound and can accept the stress of contracting paper. Builder's flat is not an acceptable painted surface. If builder's flat (cheap paint) is present, treat it as above for raw sheetrock.

4. Liner Paper: Lining paper is required as it will give the installer more control over the installation, especially at seams, and will improve the finish qualities of the installation. House Museums and other sites concerned with longevity of the installation should use an acid-free paper liner. Modern lining papers (sometimes called bridging liners) - 50/50 blends of cotton pulp and rayon, polyester or other synthetics are not suitable as an underlayment for paper installations.
- C. Remove wallcovering material from its packaging and allow to acclimatize to the area of installation 24 hrs. before application.
- D. Remove switchplates, wall plates, and surface-mounted fixtures, where wallcovering is to be applied.
- E. Provide tarpaulins, drop cloths and other suitable covers to protect adjacent and underlying surfaces which are likely to be stained, spotted or otherwise marked by wallpaper paste and application operations.

3.3 INSTALLATION

- A. Place wallcovering panels and lining materials consecutively in the order they are cut from rolls, including filling of spaces above or below openings. Hang by match patterns.
- B. Apply adhesive to wall or back of wallcovering following wall covering manufacturer's instructions, using roller or paste brush. Install seams vertically and plumb, and at least 6" away from any corner; horizontal seams will not be permitted. Place wallcovering continuously over internal and external corners, going 12" beyond outside corners and 6" at inside corners. Overlap seams and double-cut to assure tight closure. Roll, brush or use a broad knife to remove air bubbles, wrinkles, blisters and other defects. Cut wallcovering evenly to the edges of the outlet box or support.
- C. Trim selvages as required to assure color uniformity and pattern match at seams.
- D. Remove excess adhesive along finished seams using warm water and a clean sponge, and wipe dry.
- E. Install wallcovering with an intimate substrate bond, smooth, clean, without wrinkles, gaps and overlaps.
- F. Wall covering shall be mounted and wrapped on wall plates within wallpaper walls with matched patterns. Neatly cut and trim openings for switches, outlets, screws, or other openings. Replace covered plates and fixtures to verify cut edges of wallcovering are completely concealed.
- G. Verify that pattern and color are as specified. The pattern is not random, examine for repeat in design, and match patterns.
- H. Hang smooth, non-match patterns by pasting strips on the wall, overlapping the edges, and "Double-Cutting" through both thicknesses. Use a 0.04" or 0.06" zinc or aluminum strip between wall and strip when cutting, to avoid gouging the wall.
- I. Use soft cloth or brush or flexible board knife to eliminate air pockets and to secure the wallcovering to the wall surface.

J. Fill spaces above and below doors and similar areas in sequence from the roll.

K. Examine each double-cut seam carefully when completed. Trim additional selvage where required to achieve a color and pattern match at seams.

3.4 PROTECTION

A. Protect finished work installed by other trades prior to work under this Section. Replace any work damaged by workmen of this trade without cost to the Owner.

3.5 CLEAN-UP

A. Any hardware, accessories, plates, etc., which are removed during wallcovering installation shall be replaced level and square.

B. All debris resulting from work covered in this Section shall be removed from the building on a daily basis.

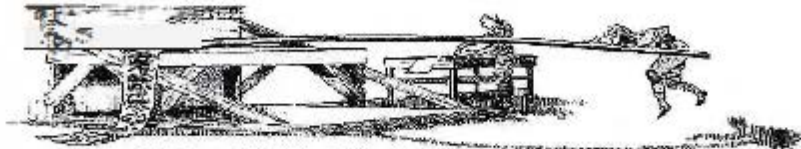
3.6 MANUFACTURER'S EXHIBITS

A. Adelphi.

B. Hamilton Weston.

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ADELPHI PAPER HANGINGS



Makers of The Finest Quality Wallpaper and Borders

Guidelines for Application

Specifications

Paper: 75% cotton 25% cellulose. Acid neutralized

Coating: Non-toxic acrylic distemper.

Wall Preparation

Plaster: Prime with a non-pigmented acrylic wallcovering primer.

Raw Sheetrock: Prime with one coat alkyd oil or one coat wall-protecting sealer such as Gardz (from Zinsser) or Draw-Tite (from Scotch Paint) followed by an acrylic wallcovering primer. Alternatively, "Fresh Start" primer from Benjamin-Moore, in either an alkyd or acrylic formulation may be used as the first coat, followed by an acrylic wallcovering primer.

Painted Walls (sheetrock or plaster): Painted walls should be examined to ensure that the paint film is sealed, sound and can accept the stress of contracting paper. Builder's flat is not an acceptable painted surface. If builder's flat (cheap paint) is present, treat it as above for raw sheetrock.

Liner Paper: Lining paper is **strongly recommended** as it will give the installer more control over the installation, especially at seams, and will improve the finish qualities of the installation. House Museums and other sites concerned with longevity of the installation should use an acid-free paper liner. Modern lining papers (sometimes called bridging liners) - 50/50 blends of cotton pulp and rayon, polyester or other synthetics are not suitable as an underlayment for paper installations.

Trimming

Our papers can be applied with a modern butt seam or, more traditionally, with an overlap of approximately 1/2 to 3/4 inch. In either case, block-printed papers have selvages which must be trimmed. For butt seams, trim both

sides to match. For overlapping seams, trim one side to match and leave 1/2 to 3/4 inch plain selvedge on the other. In general, butt seaming is the more difficult method and is more likely to lead to paste stains at the seam areas.

Pasting

Use either wheat paste mixed by hand or use a premixed clear paste such as Shur Stik 44 or 780, Golden Harvest 14 or 34 (GH-14 or GH-34) or Romans Professional 880 or 838 or Dynamite 234. For plain painted papers a mixture of 75% wheat paste to 25% cellulose is recommended. In the UK we recommend Hall Beeline Wheat Based Tub Paste. Dilute paste only if needed.

Installing

Paste the back of the paper. Avoid getting paste on the surface. Paste with brush or roller. Allow the paper to relax for a minimum of 5 minutes up to around 10 minutes before hanging. Fold the bottom third of the strip before approaching the wall. Installation is safer with two people.

The distemper finish is not like modern washable papers; it is 'wipe-able' but not washable. Install with extreme care to keep adhesive from touching the surface. If this happens, blot lightly (but do not rub) with a damp sponge to remove residue. Double-cutting is not possible. Always keep paste off your hands during the pasting and installing phases. It helps to keep a towel on your person to remove adhesive from your fingers during pasting and hanging.

TIPS

Allow drying time before setting the seams.

Use a soft smoothing brush and a wooden roller to set the seams. Take care to roll the seams lightly: excess pressure can cause the paste to ooze out onto the face of the paper. Excessive pressure can also result in a shiny seam.

If you can, hire a professional paperhanger to measure the room to determine the proper quantity of paper. Buy a few extra rolls for disaster and repairs. As each run is printed to order there can be slight variations from one to the next; make certain you order enough from the same production run.

Suitable lining paper and other paperhanging supplies are available online from www.paper-hangings.com. They are available by telephone at: 413-243-3489



PAPER HANGING INSTRUCTIONS for Hamilton Weston Wallpapers

Please read these instructions carefully before hanging this wallcovering. Hamilton Weston Wallpaper Ltd. always recommend the use of a professional decorator to hang these specialist wallcoverings.

Preparation

- Walls should be dry, clean and even.
- Remove any old wallpaper and loose paint.
- Roughen painted surfaces with sandpaper.
- For best results we recommend that walls are cross lined using a good quality lining paper.
- Sizing the lining paper will aid adhesion.

Lining should be allowed to dry out completely before hanging the wallcovering.

DIGITAL PRINTS ON NON WOVEN BASE

Pasting and Hanging

- This is a paste the wall product. The decorator should paste the wall and not the back of the wallcovering.
- A good quality, solvent free, fungicide protected ready-mixed 'tub' adhesive should be used for the lining and the wallpaper
- Paste should be evenly applied to the wall, one length at a time, to an area slightly wider than the width of the paper.
- But joint and use a decorators brush to smooth down the wallcovering, working from the centre to the edges to remove any air bubbles.
- Avoid squeezing paste out of the joints and ensure paste does not get onto either the brush or roller.
- No paste should be allowed to come into contact with the surface and hands should be kept clean and dry whilst hanging the wallcovering
- Paste will damage the surface. We cannot accept responsibility for marks or damage caused by paste.
- Should any paste have been allowed to come into contact with the surface, it should be lightly sponged while still moist, using a clean damp sponge.

Wide width digital prints

To hang the first drop, press it onto the pasted wall along the top. Keeping the rest of the paper off the wall align the edge of the paper to the vertical guide line. Once in position use a plastic spatula to smooth the paper downwards & outwards, removing all air bubbles. Trim top & bottom.

Paste the required area & hang the second drop overlapping the edge of the first drop by approx. 20mm, to match the pattern. Secure the rest of the paper as before. Cut through the centre of the overlap with a very sharp blade using a metal edge as a guide. Ensure metal cutting guide is appropriate for the wall surface. We recommend a short edge that is pliable enough to mould to the wall. Pull away the 2 strips of paper, flap back the edges & re-paste. Press edges back into position to form a perfect join. Now trim top & bottom.

London Maps 1862 & 1746

With each drop cut and overlap the sections on site as required to obtain the best possible pattern match for each join. Align the top and adjoining edges and smooth the drop into place using a felt roller for smoothing by starting at the middle of each drop. It may help to soften longer drops by lightly spraying the reverse delicately and lightly with water before hanging and positioning the paper.



Design: Swakeleys ONLY

This paper is supplied on a non woven base but is supplied untrimmed. Walls should be cross lined as above. Decide on the starting point for the area to be papered, plumb a line for the first drop. ANY PENCIL MARKS MAY SHOW THROUGH A PALE PAPER SO DO NOT USE A HEAVY MARKER.

Measure the length of the first drop, adding sufficient excess top and bottom to allow for trimming. Check all drops required are the correct length. Cut and number the required drops.

Continue to hang the paper using the instructions a for digital printed paper above.

HAND PRINTS

Any paper based product should have the paste applied to the paper (NOT THE WALL)

To obtain the best result, walls should be cross-lined with a good quality lining paper. Dark coloured wallpapers may need the edges colouring with a matching crayon before hanging. This will avoid white edges showing.

Adhesive

Use a good quality ready mixed tub paste

(UK: Cole & Son, Bedline prepared tub paste for hand prints)

A smooth thick paste rather rounder than usual, and well brushed out, will provide the best adhesion. (Cellulose and powder pastes are not recommended as they are likely to cause surface staining). Over soaking is to be avoided, but sufficient time should be allowed to enable the paper to become supple or bubbling may result. Allow 5-8 minutes, depending on room temperature.

We recommend that ONE length only is cut and pasted* at a time. Care should be taken to avoid double pasting as this can cause discolouration. Paste should not be allowed to come into contact with the printed surface of the wallpaper. (Any paste touching the surface of the paper should be removed immediately by dabbing it off quickly with a very lightly moistened soft sponge). Joints should be tightly butted, not overlapped.

General

This information has been supplied in good faith, but without guarantee. Hamilton Weston Wallpaper Ltd. cannot be held responsible for any installation. Site conditions are beyond our control. It is the responsibility of the purchaser to ensure that the environment is suitable for the wallcovering.

Should the paper be considered faulty after the first two or three lengths have been hung, this should be notified immediately. We cannot accept responsibility after the work has been completed, and no hanging costs will be allowed for goods hung.

Finishing

If added protection is required, we recommend 'Polyvine' water-based varnish available in Dead Matt, Satin or Gloss finish. Allow the wallpaper to dry for 24hrs. before varnishing. For further information see www.polyvine.com

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END OF SECTION

E

SECTION 099000 - PAINTING AND FINISHING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to this Section.
- B. Site Walkthrough.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the preparation and painting and finishing as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - a. Prime painting unprimed surfaces to be painted under this Section.
 - b. Painting all items furnished with a prime coat of paint, including touching up of or repairing of abraded, damaged or rusted prime coats applied by others.
 - c. Painting all ferrous metal (except stainless steel) exposed to view.
 - d. Painting all galvanized ferrous metals exposed to view.
 - e. Painting of stone foundation walls.
 - f. Painting plaster and gypsum drywall exposed to view.
 - g. Painting of exterior wood
 - h. Painting of interior wood.
 - i. Staining and finishing of exterior wood.
 - j. Staining of interior wood.
 - k. Painting of wood exposed to view, except items which are specified to be painted or finished under other Sections of these specifications. Back painting of all wood in contact with concrete, masonry or other moisture areas.
 - l. Painting pipes, pipe coverings, conduit, ducts, insulation, hangers, supports and other mechanical and electrical items and equipment exposed to view.
 - m. Painting surfaces above, behind or below grilles, gratings, diffusers, louvers, lighting fixtures, and the like, which are exposed to view through these items.
 - n. Incidental painting and touching up as required to produce proper finish for painted surfaces, including touching up of factory finished items.
 - o. Painting of any surface not specifically mentioned to be painted herein or on drawings, but for which painting is obviously necessary to complete the job, or work which comes within the intent of these specifications, shall be included as though specified.
- B. Refer to the drawings "G-sheets" for expectations of final paint smoothness and texture for interior and exterior work.
- C. One panel in each Historic Door is a "Window in Time," and will not have any sanding or surface preparation. Tag these panels for no preparation other than cleaning. The panel in each door will receive a new finish coating to preserve it's original historic condition of layers of paint over time.

1.3 RELATED SECTIONS

- A. Priming is required on some, but not all of the items scheduled to be field painted. Refer to other Sections of work for complete description.
- B. Shop coat on machinery and equipment: Refer to the Sections under which various items of manufactured equipment with factory applied shop prime coats are furnished, including, but not necessarily limited to, the following Sections. All items of equipment furnished with prime coat finish shall be finish painted under this Section.
 - p. Plumbing - Division 22.
 - q. Heating, Ventilation and Air Conditioning – Division 23.
- C. Wallcovering - Section 097200.
- D. Silicate Coating – Section 099723 for painting of all exterior stone and masonry.
- E. Color Coding of Mechanical Piping and Electrical Conduits – Divisions 22 and 26.
 - r. This Color Coding consists of an adhesive tape system and is in addition to painting of piping and conduits under this Section, as specified above.

1.4 MATERIALS AND EQUIPMENT NOT TO BE PAINTED

- A. Items of equipment furnished with complete factory finish, except for items specified to be given a finish coat under this Section.
- B. Factory-finished toilet partitions.
- C. Non-ferrous metals, except for items specified and/or indicated to be painted.
- D. Finished hardware, excepting hardware that is factory primed.
- E. Surfaces not to be painted shall be left completely free of droppings and accidentally applied materials resulting from the work of this Section.

1.5 QUALITY ASSURANCE

- A. Job Mock-Up
 - s. In addition to the samples specified herein to be submitted for approval, apply in the field, at their final location, each type and color of approved paint materials, applied 10 feet wide, floor to ceiling of wall surfaces, before proceeding with the remainder of the work, for approval by the Architect. Paint mock-ups to include door and frame assembly.
 - t. These applications when approved will establish the quality and workmanship for the work of this Section.
 - u. Repaint individual areas which are not approved, as determined by the Architect, until approval is received. Assume at least two paint mock-ups of each color and gloss for approval.
- B. Qualification of Painters: Use only qualified journeyman painters for the mixing and application of paint on exposed surfaces.

- C. Paint Coordination: Provide finish coats which are compatible with the prime paints used. Review other Sections of these specifications in which prime paints are to be provided to ensure compatibility of the total coatings system for the various substrates. Upon request from other subcontractors, furnish information on the characteristics of the finish materials proposed to be used, to ensure that compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify the Architect in writing of any anticipated problems using the coating systems as specified with substrates primed by others.
- D. All paints must conform to the Volatile Organic Compounds (VOC) standards of prevailing codes and ordinances.

1.6 SUBMITTALS

- A. Materials List: Before any paint materials are delivered to the job site, submit to the Architect a complete list of all materials proposed to be furnished and installed under this portion of the work. This shall in no way be construed as permitting substitution of materials for those specified or accepted for this work by the Architect.
- B. Samples
 - v. Accompanying the materials list, submit to the Architect copies of the full range of colors available in each of the proposed products.
 - w. Upon direction of the Architect, prepare and deliver to the Architect two (2) identical sets of Samples of each of the selected colors and glosses painted onto 8-1/2" x 11" x 1/4" thick material; whenever possible, the material for Samples shall be the same material as that on which the coating will be applied in the work.
- C. Manufacturer's Recommendations: In each case where material proposed is not the material specified or specifically described as an acceptable alternate in this Section of these specifications, submit for the Architect's review the current recommended method of application published by the manufacturer of the proposed material.

1.7 PRODUCT HANDLING

- A. Deliver all paint materials to the job site in their original unopened containers with all labels intact and legible at time of use.
- B. Protection
 - x. Store only the approved materials at the job site, and store only in a suitable and designated area restricted to the storage of paint materials and related equipment.
 - y. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste.
 - z. Use all means necessary to protect paint materials before, during and after application and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.8 EXTRA STOCK

- A. Upon completion of this portion of the Work, deliver to the Owner an extra stock of paint equaling approximately ten (10) percent of each color and gloss used and each coating material used, with all such extra stock tightly sealed in clearly labeled containers.

1.9 JOB CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 50 degrees F. and 90 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions.
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 degrees F. and 95 degrees F. unless otherwise permitted by the paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog or mist; or when the relative humidity exceeds eighty-five (85) percent; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer's printed instructions.
- D. Painting may be continued during inclement weather only if the areas and surfaces to be painted are enclosed and heated within the temperature limits specified by the paint manufacturer during application and drying periods.

PART 2 PRODUCTS

2.1 PAINT MANUFACTURERS

- A. Except as otherwise noted, provide the painting products listed for all required painting made by one of the manufacturers listed in the paint schedule (Section 2.4). These companies are Benjamin Moore, PPG Paint (Glidden Professional), and Sherwin Williams (S-W). Comply with number of coats and required minimum mil thicknesses as specified herein.

2.2 MATERIALS

- A. Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer, and use only to recommended limits.
- B. Colors and Glosses: All colors and glosses shall be as selected by the Architect. Certain colors will require paint manufacturer to prepare special factory mixes to match colors selected by the Architect. Color schedule (with gloss) shall be furnished by the Architect.
- C. Coloring Pigment: Products of or furnished by the manufacturer of the paint or enamel approved for the work.
- D. Linseed Oil: Raw or boiled, as required, of approved manufacture, per ASTM D 234 and D 260, respectively.
- E. Turpentine: Pure distilled gum spirits of turpentine, per ASTM D 13.

- F. Shellac: Pure gum shellac (white or orange) cut in pure denatured alcohol using not less than four (4) lbs. of gum per gallon of alcohol.
- G. Driers, Putty, Spackling Compound, Patching Plaster, etc.: Best quality, of approved manufacture.
- H. Heat-Resistant Paint: Where required, use heat resistant paint when applying paint to heating lines and equipment.

2.3 GENERAL STANDARDS

- A. The various surfaces shall be painted or finished as specified below in Article 2.4. However, the Architect reserves the right to change the finishes within the range of flat, semi-gloss or gloss, without additional cost to the Owner.
- B. All paints, varnishes, enamels, lacquers, stains and similar materials must be delivered in the original containers with the seals unbroken and label intact and with the manufacturer's instructions printed thereon.
- C. All painting materials shall bear identifying labels on the containers with the manufacturer's instructions printed thereon.
- D. Paint shall not be badly settled, caked or thickened in the container, shall be readily dispersed with a paddle to a smooth consistency and shall have excellent application properties.
- E. Paint shall arrive on the job color-mixed except for tinting of under-coats and possible thinning.
- F. All thinning and tinting materials shall be as recommended by the manufacturer for the particular material thinned or tinted.
- G. It shall be the responsibility of the Contractor to see that all mixed colors match the color selection made by the Architect prior to application of the coating.

2.4 CLEANERS FOR EXISTING PAINT FINISHES TO REMAIN AT EXTERIOR:

- A. Gentle, pH neutral cleaners formulated to remove mold/mildew staining, as well as atmospheric staining. Product must be deemed safe to use near vegetation and suitable for use on paint and bare wood per Manufacturer's recommendations.
 - 1. Prosoco EnviroKlean ReVive
 - 2. Or approved equal.

2.5 LEAD ENCAPSULANT

- A. Liquid-applied, water-based encapsulant for lead-based paint.
 - 1. Fiberlock Lead Barrier Compound Professional Lead Encapsulant/Sealant (Type III)

2.6 BINDING PRIMER

- A. Water-based acrylic binding primer designated to penetrate and stop previous coating from peeling.

- 1. Zinsser Peel Stop Tripple Thick Primer

2.7 SCHEDULE OF FINISHES

- A. Paint colors: All paint colors are to be determined pending final microscopy color analysis. The approximate number of interior paint colors is as Scheduled on the drawings.
- B. Material Compatibility: Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer based on testing and field experience.
For each coat in a paint system, provide products recommended in writing by topcoat manufacturer for use in paint system and on substrate indicated.

- C. High Performance Coating on Exterior Galvanized Ferrous Metals

- First Coat: "PittGuard Rapid Coat Epoxy 95-245 Series by PPG, "Series 27WB Typoxy" by Tnemec; "Epoxy Mastic Coating V 160" by Benjamin Moore Corotech or "Recoatable Epoxy Primer 867-45" by Sherwin Williams.

- Second Coat: "Pittthane Ultra 95-812 (Gloss)" or "High Build 95-8800 (Semi-Gloss)" by PPG; "Series 1080 (gloss) Endura-Shield WB" or "Series 1081 (semi-gloss) Endura-Shield WB" by Tnemec; "Acrylic Aliphatic Urethane V 500 (Gloss)" or "V 510 (Semi-Gloss)" by Benjamin Moore Corotech or "Hi-Solids Urethane B65-300/350" by Sherwin Williams.

- D. High Performance Coating on Exterior Non-Galvanized Ferrous Metals

- Prime Coat: "Amercoat 68HS Epoxy Zinc-Rich Primer" by PPG; "Series 94-H₂O Hydro-Zinc" by Tnemec; "Organic Zinc Rich Primer V 170" by Benjamin Moore Corotech or "Zinc Clad II Plus Inorganic Zinc Rich Coating B69V212" by Sherwin Williams.

- Second Coat: "Pitt Guard Rapid Coat Epoxy 95-245" by PPG; "Series 27WB Typoxy" by Tnemec; "Epoxy Mastic Coating V 160" by Benjamin Moore Corotech or "Macropoxy 646 Fast Cure Epoxy B58-600" by Sherwin Williams.

- Third Coat: "Pitthane Ultra 95-812 (Gloss)" or "High Build 95-8800 (Semi-Gloss)" by PPG; "Series 1070V (gloss) Fluoronar" or "Series 1071V (semi-gloss) Fluoronar" by Tnemec; "Acrylic Aliphatic Urethane V 500 (Gloss)" or "V 510 (Semi-Gloss)" by Benjamin Moore Corotech or "Hi-Solids Polyurethane B65-300/350" by Sherwin Williams.

- E. New and Existing Wood Cladding include painting of cedar shake siding - new and existing Substrates: For, Decorative Wood Trim Elements And Architectural Cladding.

1. Latex over Alkyd Primer System: Apply primer and intermediate coat to surfaces that will be concealed in the completed Work; and primer plus two topcoats to exposed surfaces. Total system thickness: 6-7 mils DFT.
 - a. Prime Coat:
 - 1). For new -
Shop applied Sherwin-Williams; Exterior Oil-Based Wood Primer, Y24W8020;
 - 2). For existing -
Sherwin-Williams; Exterior Oil-Based Wood Primer, Y24W8020, with field application, 1-2 mils DFT,
or
PPG Seal Grip Gripper Interior/Exterior 100% Acrylic Latex Primer, 17-921 XI Series.
 - b. Intermediate Coat:
 - 1). For new -
Shop applied latex, exterior, matching topcoat, (2 mils DFT).
 - 2). For existing -
PPG Acri-Shield Max Exterior 100% Acrylic Latex Satin, 739-10 Series (2 mils DFT)
 - c. Topcoat:
 - 1). For New -
Sherwin-Williams; SuperPaint Exterior Acrylic Latex, A80-1100 Series (Gloss Level 6), (2 mils DFT).
 - 2). For existing -
PPG Acri-Shield Max Exterior 100% Acrylic Latex Satin, 739-10 Series (2 mils DFT)
- F. Wood Opening Substrates: Including Exterior Wood Doors, Replacement Wood Window Sash, And Replacement Wood Windows, Entablatures And Associated New And Existing Wood Trim.
 1. Water-Reducible, Odorless, Urethane-Alkyd Emulsion System with oil based primer:
 - a. 1st coat interior and exterior: Fine Paints of Europe Oil based primer undercoat (spray shop applied).
 - b. 2nd coat at interior and exterior: Fine Paints of Europe ECO primer (spray shop applied).
 - c. 3rd coat:
 - 1). Exterior: Fine Paints of Europe ECO brilliant (spray shop applied).
 - 2). Interior: Compatible Benjamin Moore low / no VOC paint (spray shop applied).

- d. 4th coat:
 - 1). Exterior: Fine Paints of Europe ECO brilliant (spray shop applied)
 - 2). Interior: Compatible Benjamin Moore low / no VOC paint (spray shop applied)
- e. Touch up: Touch up of interior and exterior surfaces to be done in the field.
- f. Exterior Wood Door and Window Paint Colors and Finishes
 - 1). Windows: Interior and exterior surfaces will be different colors:
 - (a). Painted Interior: see Window Schedule for locations to be painted with non-standard color; finish to be semi-gloss (Gloss Level 5).
 - (b). Stained Interior: finish to be stained at windows indicated on window schedule.

G. Wood Stains:

- aa. Primer, Alkyd Oil for Exterior Wood: Alkyd/oil-based primer for exterior wood with resistance to bleeding.
- bb. Alkyd Sanding Sealer, Interior, Solvent Based, Clear: Solvent-based, quick-drying, clear, sandable alkyd sealer used on new interior wood surfaces that are to be top-coated with an alkyd varnish.
- cc. Interior Wood Stain: As selected by Architect.
- dd. Exterior Wood Stain: Stain, Exterior, Solvent Based, Semitransparent: Solvent-based, oil or oil/alkyd, semitransparent, pigmented stain for new wood surfaces. Color as selected by the architect.
- ee. Staining and Transparent Finishing for Porch 124 Post and Beams: "Sher-Wood Ultra-Cure" line oil products by Sherwin-Williams, or approved equal.
- ff. Varnish with UV Inhibitor, Exterior, Gloss: Solvent-based, alkyd-type, clear gloss varnish stabilized against UV deterioration for exterior wood surfaces. Gloss level as selected by the architect.
- gg. Varnish, Interior, Polyurethane, Oil Modified, Satin: Solvent-based, one-component, oil-modified polyurethane clear satin varnish for new or previously varnished or stained interior wood surfaces. Gloss level as selected by the architect.

H. Interior Ferrous Metal

Satin Finish/Latex

- Primer: Benj. Moore Ultra Spec HP Acrylic Metal Primer (HP04)
 PPG Pitt Tech Plus DTM Acrylic Primer 4020
 Sherwin-Williams Pro-Industrial Pro-Cryl Universal Primer B66-3100 Series
- First Coat: Benj. Moore Ultra Spec-HP DTM Acrylic Low Luster (HP25)
 PPG Pitt Glaze WB1 Pre-Catalyzed Eggshell Epoxy 16-310
 S-W Pro Industrial Acrylic Eg-Shel, B66-660 Series
- Second Coat: Benj. Moore Ultra Spec-HP DTM Acrylic Low Luster (HP25)

PPG Pitt Glaze WB1 Pre-Catalyzed Eggshell Epoxy 16-310

S-W Pro Industrial Acrylic Eg-Shel, B66-660 Series

- a. Total DFT not less than: 3.9 mils

Semi-Gloss Finish/Latex

Primer: Benj. Moore Ultra Spec-HP Acrylic Metal Primer (HP04)

PPG Devflex 4020 PF DTM Primer/Flat Finish

Sherwin-Williams Pro-Industrial Pro-Cryl Universal Primer B66-3100 Series

First Coat: Benj. Moore Ultra Spec HP DTM Acrylic Semi-Gloss (HP29)

PPG Pitt Glaze WB1 Pre-Catalyzed Semi-Gloss Epoxy 16-510

S-W Pro Industrial Acrylic Semi-Gloss, B66-650 Series

Second Coat: Benj. Moore Ultra Spec HP DTM Acrylic Semi-Gloss (HP29)

PPG Pitt Glaze WB1 Pre-Catalyzed Semi-Gloss Epoxy 16-510

S-W Pro Industrial Acrylic Semi-Gloss, B66-650 Series

- a. Total DFT not less than: 4.0 mils

I. Interior Concrete Block and Existing Stone Foundation walls not exposed to Weather:

Flat Finish/Vinyl Acrylic Latex over Filler

Block Filler: Benj. Moore Ultra Spec Masonry Int./Ext. High Build Block Filler (571)

PPG Speedhide HI Fill Latex Block Filler 6-15XI

S-W Pro Industrial Heavy-Duty Block Filler, B42-150

First Coat: Benj. Moore Ultra Spec 500 Interior Flat Latex (N536)

PPG Speedhide Zero Interior Latex Flat 6-4110XI

S-W ProMar 200 Zero VOC Interior Latex Flat, B30-12600 Series

Second Coat: Benj. Moore Ultra Spec 500 Interior Flat Latex (N536)

PPG Speedhide Zero Interior Latex Flat 6-4110XI

S-W ProMar 200 Zero VOC Interior Latex Flat, B30-12600 Series

- a. Total DFT not less than: 10.7 mils

Eggshell Finish/Vinyl Acrylic Latex Over Filler

Block Filler: Benj. Moore Ultra Spec Masonry Int./Ext. High Build Block Filler (571)

PPG Speedhide HI Fill Latex Block Filler 6-15XI

S-W Pro Industrial Heavy-Duty Block Filler, B42-150

First Coat: Benj. Moore Ultra Spec 500 Interior Latex Eggshell (N538)

PPG Speedhide Zero Interior Latex Eggshell 6-4310XI

S-W ProMar 200 Zero VOC Interior Latex Eg-Shel, B20-1900 Series

Second Coat: Benj. Moore Ultra Spec 500 Interior Latex Eggshell (N538)

PPG Speedhide Zero Interior Latex Eggshell 6-4310XI

S-W ProMar 200 Zero VOC Interior Latex Eg-Shel, B20-1900 Series
a. Total DFT not less than: 10.9 mils

Semi-Gloss Finish/Vinyl Acrylic Latex over Filler

Block Filler: Benj. Moore Ultra Spec Masonry Int./Ext. High Build Block Filler (571)

PPG Speedhide HI Fill Latex Block Filler 6-15XI

S-W Pro Industrial Heavy-Duty Block Filler, B42-150

First Coat: Benj. Moore Ultra Spec 500 Interior Latex Gloss (N540)

PPG Speedhide Zero Interior Semi-Gloss Latex, 6-4510XI Series

S-W ProMar 200 Zero VOC Interior Latex Semi-Gloss, B31-2600 Series

Second Coat: Benj. Moore Ultra Spec 500 Interior Latex Gloss (N540)

PPG Speedhide Zero Interior Semi-Gloss Latex, 6-4510XI Series

S-W ProMar 200 Zero VOC Interior Latex Semi-Gloss, B31-2600 Series

a. Total DFT not less than: 10.7 mils

J. Interior Drywall and new and existing Plaster

Flat Finish/Vinyl Acrylic Latex

Primer: Benj. Moore Ultra Spec 500 Interior Latex Primer (N534)

PPG Speedhide Zero Interior Latex Primer 6-4900XI

S-W ProMar 200 Zero VOC Interior Latex Primer, B28-2600

First Coat: Benj. Moore Ultra Spec 500 Latex Flat (N536)

PPG Speedhide Zero Interior Latex Flat 6-4110XI

S-W ProMar 200 Zero VOC Interior Latex Flat, B30-12600 Series

Second Coat: Benj. Moore Ultra Spec 500 Latex Flat (N536)

PPG Speedhide Zero Interior Latex Flat 6-4110XI

S-W ProMar 200 Zero VOC Interior Latex Flat, B30-12600 Series

Third Coat: Benj. Moore Ultra Spec 500 Latex Flat (N536)

PPG Speedhide Zero Interior Latex Flat 6-4110XI

S-W ProMar 200 Zero VOC Interior Latex Flat, B30-12600 Series

Eggshell Finish/Vinyl Acrylic Latex

Primer: Benj. Moore Ultra Spec 500 Interior Latex Primer (N534)

PPG Speedhide Zero Interior Latex Primer 6-4900XI

S-W ProMar 200 Zero VOC Interior Latex Primer, B28-2600

First Coat: Benj. Moore Ultra Spec 500 Interior Latex Eggshell (N538)

PPG Speedhide Zero Interior Latex Eggshell 6-4310XI

S-W ProMar 200 Zero VOC Interior Latex Eg-Shel, B20-1900 Series

Second Coat: Benj. Moore Ultra Spec 500 Interior Latex Eggshell (N538)

PPG Speedhide Zero Interior Latex Eggshell 6-4310XI

S-W ProMar 200 Zero VOC Interior Latex Eg-Shel, B20-1900 Series

Third Coat: Benj. Moore Ultra Spec 500 Interior Latex Eggshell (N538)

PPG Speedhide Zero Interior Latex Eggshell 6-4310XI

S-W ProMar 200 Zero VOC Interior Latex Eg-Shel, B20-1900 Series

K. Interior Painted Wood

Satin Finish/Latex

Primer: Benj. Moore Advance Waterborne Int. Alkyd Primer (790)

PPG Seal Grip Interior Primer/Finish 17-951

- PPG Seal Grip Gripper Interior/Exterior 100% Acrylic Latex Primer, 17-921 XI Series
- S-W Multi-Purpose Latex Primer/Sealer B51 Series
- First Coat: Benj. Moore Advance Waterborne Int. Alkyd Satin (792)
- PPG Speedhide Zero Interior Latex Satin, 6-4410XI
- PPG Speedhide Zero, Speedhide Pro EV Zero, Multi-Pro, or Pure Performance
- S-W ProMar 200 Zero VOC Interior Latex Eg-Shel, B20-1900 Series
- Second Coat: Benj. Moore Advance Waterborne Int. Alkyd Satin (792)
- PPG Speedhide Zero Interior Latex Satin, 6-4410XI
- PPG Speedhide Zero, Speedhide Pro EV Zero, Multi-Pro, or Pure Performance
- S-W ProMar 200 Zero VOC Interior Latex Eg-Shel, B20-1900 Series
- a. Total DFT not less than: 4.0 mils

Semi-Gloss Finish/Latex

- Primer: Benj. Moore Advance Waterborne Int. Alkyd Primer (790)
- PPG Seal Grip Interior Primer/Finish 17-951
- S-W Multi-Purpose Latex Primer/Sealer B51 Series
- First Coat: Benj. Moore Advance Waterborne Int. Alkyd (793)
- PPG Speedhide Zero Interior Semi-Gloss Latex, 6-4510XI
- S-W ProMar 200 Zero VOC Interior Latex Semi-Gloss, B31-2600 Series
- Second Coat: Benj. Moore Advance Waterborne Int. Alkyd (793)
- PPG Speedhide Zero Interior Semi-Gloss Latex, 6-4510XI
- S-W ProMar 200 Zero VOC Interior Latex Semi-Gloss, B31-2600 Series
- a. Total DFT not less than: 3.8 mils

L. Primer for Fiberglass Faced Drywall:

- 1 coat Benjamin Moore 046 Fresh Start Acrylic Superior Primer
- 1 coat Glidden Prep and Primer Gripper Multi-Purpose Interior/Exterior Water Based Primer Sealer 3210-1200
- 1 coat Pratt & Lambert "Suprime" Interior Latex Enamel Undercoater Z1013/F1013
- 1 coat Sherwin Williams "Builders Solution."

M. Concrete Sealer: "Super Diamond VOX" by Euclid Chemical or approved equal.

N. Concrete Floor Paint

- Primer: Corotech V155 Solid Epoxy Pre-Primer
- First Coat: Corotech V440 Waterborne Amine Epoxy
- Second Coat: Corotech V440 Waterborne Amine Epoxy
- Non-Slip Aggregate: Broadcast Corotech V630 Anti-Slip Aggregate.

2.8 PIPING AND MECHANICAL EQUIPMENT EXPOSED TO VIEW

- A. Paint all exposed piping, conduits, ductwork and mechanical and electrical equipment. Use heat resisting paint when applied to heating lines and equipment. The Contractor is cautioned not to paint or otherwise disturb moving parts in the mechanical systems. Mask or otherwise protect all parts as required to prevent damage.

- B. Exposed Uncovered Ductwork, Piping, Hangers and Equipment: Latex Enamel Undercoater and one (1) coat Acrylic Latex Flat.
- C. Exposed Covered Piping, Duct Work and Equipment: Primer/Sealer and one (1) coat Acrylic Latex Flat.
- D. Panel Boards, Grilles and Exposed Surfaces of Electrical Equipment: Latex Enamel Undercoater and two (2) coats Latex Semi-Gloss.
- E. Equipment or Apparatus with Factory-Applied Paint: Refinish any damaged surfaces to match original finish. Do not paint over name plates and labels.
- F. All surfaces of insulation and all other work to be painted shall be wiped or washed clean before any painting is started.
- G. All conduit, boxes, distribution boxes, light and power panels, hangers, clamps, etc., are included where painting is required.
- H. All items of Mechanical and Electrical trades which are furnished painted under their respective Contracts shall be carefully coordinated with the work of this Section so as to leave no doubt as to what items are scheduled to be painted under this Section.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where painting and finishing are to be applied and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 GENERAL WORKMANSHIP REQUIREMENTS

- A. Only skilled mechanics shall be employed. Application may be by brush or roller. Spray application only upon acceptance from the Architect in writing.
- B. Refer to the drawings and visual examples for level of preparation required to meet the smoothness requirements for the interior scope of work.
- C. Observe and protect the "Windows in Time," on each Historic Door panel.
- D. Identify Calcimine paint under coatings for removal and neutralization.
- E. The Contractor shall furnish the Architect a schedule showing when he expects to have completed the respective coats of paint for the various areas and surfaces. This schedule shall be kept current as the job progresses.
- F. The Contractor shall protect his work at all times and shall protect all adjacent work and materials by suitable covering or other method during progress of his work. Upon completion of the work, he shall remove all paint and varnish spots from floors, glass and other surfaces. He shall remove from the premises all rubbish and accumulated materials of whatever nature

not caused by others and shall leave his part of the work in clean, orderly and acceptable condition.

- G. Remove and protect hardware, accessories, device plates, lighting fixtures, and factory finished work, and similar items, or provide ample in place protection. Upon completion of each space, carefully replace all removed items by workmen skilled in the trades involved.
- H. Remove electrical panel box covers and doors before painting walls. Paint separately and re-install after all paint is dry.
- I. All materials shall be applied under adequate illumination, evenly spread and flowed on smoothly to avoid runs, sags, holidays, brush marks, air bubbles and excessive roller stipple.
- J. Coverage and hide shall be complete. When color, stain, dirt or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, color, appearance and coverage, at no additional cost to the Owner.
- K. All coats shall be dry to manufacturer's recommendations before applying succeeding coats.
- L. All suction spots or "hot spots" in plaster after the application of the first coat shall be touched up before applying the second coat.
- M. Do not apply paint behind frameless mirrors that use mastic for adhering to wall surface.

3.3 PREPARATION OF SURFACES

- A. Existing Surfaces: Clean existing surfaces requiring paint or finishing, remove all loose and flaking paint or finish and sand surface smooth as required to receive new paint or finish. No "telegraphing" of lines, ridges, flakes, etc., through new surfacing is permitted. Where this occurs, Contractor shall be required to sand smooth and re-finish until surface meets with Architect's approval.
- B. General
 - hh. The Contractor shall be held wholly responsible for the finished appearance and satisfactory completion of painting work. Properly prepare all surfaces to receive paint, which includes cleaning, sanding, and touching-up of all prime coats applied under other Sections of the work. Broom clean all spaces before painting is started. All surfaces to be painted or finished shall be perfectly dry, clean and smooth.
 - ii. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.
 - jj. Scrape off all the paint and scrub away as much of the calcimine as possible. This is a time-consuming process that requires significant amounts of elbow grease, lots of water and detergent, and patience. It is also very messy and wet, so be sure to adequately protect floors, woodwork, furniture, and fixtures in the removal area.
 - a. Step 1: Begin by scraping all visibly loose paint using a sharp putty knife or razor knife. If the ceiling is really peeling readily, start with a 6 joint compound knife. Once you get down to more stubborn paint and the calcimine, switch to a smaller 2" knife. (We prefer carbide scrapers at this stage.) Maintain control to minimize plaster damage, but remember that some is inevitable. You can repair blemishes once the

calcimine is removed. As you scrape down to the calcimine level you will notice the tool generating more dust. This is the chalk coming off. Then you will begin to see the plaster beneath, and the scraper will stop generating the chalky dust. The surface will feel different, and you can see the white lime coat or the sandy look of the plaster.

- b. Step 2: Once you feel you have scraped off as much paint as you can, begin scrubbing and washing. The water will soften the glue and encourage the calcimine to lift from the surface. Wash all surfaces with a detergent or hard surface cleaner (Spic 'n' Span, dishwashing liquid, TSP) using a scrubbing pad. Really scrub at the surfaces, and use a cleaner that will generate as many suds as possible. You want to generate a foamy-froth that suspends the water. It keeps the surface wet longer and helps the calcimine to let go.
- c. Step 3: While the surface is still foamy, use a squeegee tool or large sponge to remove the foam and water. Repeat the scrubbing, sudsing, squeegee process several times, using clean water and fresh detergent each time. Usually two to four wash/scrub cycles are necessary.
- d. Step 4: Once you feel you have all the calcimine removed, rinse all surfaces using clean water. Follow up with one final clean-water rinse, then let the surface dry completely for a few days. Test the success of your calcimine removal by firmly rubbing a dark cloth or your finger across the surface in a few different places. If chalk appears, you still have more scrubbing to do! Our goal is to remove all of the old paint and calcimine, and realistically end up somewhere around 80-percent calcimine-free. Then we rely on oil-based primer to make up the difference.
- kk. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease with clean cloths and cleaning solvents prior to mechanical cleaning. Program the cleaning and painting so that dust and other contaminants from the cleaning process will not fall in wet, newly painted surfaces.
- ll. Refer to the drawings and visual examples for level of preparation required to meet the smoothness requirements for the interior scope of work.
- mm. Observe and protect the "Windows in Time," on each Historic Door panel.

C. Metal Surfaces

- nn. Weld Fluxes: Remove weld fluxes, splatters, and alkali contaminants from metal surfaces in an approved manner and leave surface ready to receive painting.
- oo. Bare Metal: Thoroughly clean off all foreign matter such as grease, rust, scale and dirt before priming coat is applied. Clean surfaces, where solder flux has been used, with benzene. Clean surfaces by flushing with mineral spirits. For aluminum surfaces, wipe down with an oil free solvent prior to application of any pre-treatment.
- a. Bare metal to receive high performance coating specified herein must be blast cleaned SSPC SP-6 prior to application if field applied primer; coordinate with steel trades furnishing ferrous metals to receive this coating to insure that this cleaning method is followed.

- pp. Shop Primed Metal: Clean off foreign matter as specified for "Bare Metal." Prime bare, rusted, abraded and marred surfaces with approved primer after proper cleaning of surfaces. Sandpaper all rough surfaces smooth.
- qq. Galvanized Metal: Prepare surface as per the requirements of ASTM D 6386.
- rr. Metal Filler: Fill dents, cracks, hollow places, open joints and other irregularities in metal work to be painted with an approved metal filler suitable for the purpose and meeting the requirements of the related Section of work; after setting, sand to a smooth, hard finish, flush with adjoining surface.
- D. Plaster Surfaces: Scrape off all plaster nibs or other projections and sand smooth or finish to match adjoining surface texture. Cut out all scratches, cracks, holes, depressions and similar voids and fill with non-shrinking grout, spackles, patching plaster or other approved patching material; allow to dry, refill if necessary, then sand smooth (or refinish) to provide a flush, smooth surface of the same texture as the adjacent plaster surface.
 - ss. Allow at least 28 days, from installation of final plaster coat, before starting work.
- E. Gypsum Drywall Surfaces: Scrape off all projections and splatters, spackles all holes or depressions, including taped and spackled joints, sand smooth. Conform to standards established in Section 092900, "Gypsum Drywall."
- F. Wood Substrates:
 1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
 2. Sand surfaces that will be exposed to view, and dust off.
 3. Prime edges, ends, faces, undersides, and backsides of wood.
 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- G. Block Masonry Surfaces: Thoroughly clean off all grit, grease, dirt mortar drippings or splatters, and other foreign matter. Remove nibs or projections from masonry surfaces. Fill cracks, holes or voids, not filled under the "Masonry" Section, with Portland cement grout, and bag surface so that it has approximately the same texture as the adjacent masonry surface.
- H. Testing for Moisture Content: Contractor shall test all plaster, masonry, and drywall surfaces for moisture content using a reliable electronic moisture meter. Contractor shall also test latex type fillers for moisture content before application of top coats of paint. Do not apply any paint or sealer to any surface or to latex type filler where the moisture content exceeds seven (7) percent as measured by the electronic moisture meter.
- I. Touch-Up: Prime paint all patched portions in addition to all other specified coats.

3.4 MATERIALS PREPARATION

- A. Mix and prepare painting materials in strict accordance with the manufacturer's directions.

- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir all materials before application to produce a mixture of uniform density, and as required during the application of the materials. Do not stir any film which may form on the surface into the material. Remove the film and, if necessary, strain the material before using.
- D. Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are to be applied. Tint undercoats to match the color of the finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

3.5 APPLICATION

- A. General: Apply paint by brush or roller in accordance with the manufacturer's directions. Use brushes best suited for the type of material being applied. Use rollers of carpet, velvet back, or high pile sheep's wool as recommended by the paint manufacturer for material and texture required.
 - tt. The number of coats and paint film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried. Sand between each enamel or varnish coat application with fine sandpaper, or rub surfaces with pumice stone where required to produce an even, smooth surface in accordance with the coating manufacturer's directions.
 - uu. Apply additional coats when undercoats, stains, or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Give special attention to insure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a film thickness equivalent to that of flat surfaces.
 - vv. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - a. "Exposed surfaces" is defined as those areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, etc., are in place in areas scheduled to be painted.
 - ww. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint, before final installation of equipment.
 - xx. Paint the back sides of access panels, removable or hinged covers to match the exposed surfaces.
 - yy. Finish doors on tops, bottoms, and side edges the same as the faces, unless otherwise indicated.
 - zz. Enamel finish applied to wood or metal shall be sanded with fine sandpaper and then cleaned between coats to produce an even surface.
 - aaa. Paste wood filler applied on open grained wood after beginning to flatten, shall be wiped across the grain of the wood, then with a circular motion, to secure a smooth, filled, clean surface with filler remaining in open grain only. After overnight dry, sand surface with the grain until smooth before applying specified coat.
- B. Scheduling Painting

- bbb. Apply the first coat material to surfaces that have been cleaned, pre-treated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
- ccc. Allow sufficient time between successive coatings to permit proper drying. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- C. Prime Coats: Re-coat primed and sealed walls and ceilings where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.
- D. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.
- E. Touching-Up of Factory Finishes: Unless otherwise specified or shown, materials with a factory finish shall not be painted at the project site. To touch up, the Contractor shall use the factory finished material manufacturer's recommended paint materials to repair abraded, chipped, or otherwise defective surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether to be painted or not, against damage by the painting and finishing work. Leave all such work undamaged. Correct any damages by cleaning, repairing or replacing, and repainting, as acceptable to the Architect.
- B. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

3.7 CLEAN UP

- A. During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each work day.
- B. Upon completion of painting work, clean window glass and other paint spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- C. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION

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SECTION 099723 - SILICATE COATING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes an application of a long-lasting decorative mineral-based stain coating system for stone and masonry surfaces providing strong weathering protection. The application comprises a sol silicate base coat followed with a sol silicate top coat. Coating may be sprayed, rolled, or brushed in good weather before surfaces are heated up by direct sunlight.

1.3 REFERENCES

- A. General: The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only.
- B. ASTM
 - 1. ASTM E 84, "Standard Test Method for Surface Burning Characteristics of Building Materials."
 - 2. ASTM E 96, "Standard Test Methods for Water Vapor Transmission of Materials."
 - 3. ASTM E 514, "Standard Test Method for Water Penetration and Leakage Through Masonry."
 - 4. ASTM G 154, "Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials."

1.4 DEFINITIONS

- A. Silicate Coating, Base Coat: The first applied coat of the sol silicate mineral stain.
- B. Silicate Coating, Top Coat: The second applied coat of the sol silicate mineral stain.
- C. Dilution: A silicate based diluent used to thin the silicate base coat.
- D. Application Ratio: A mixture of silicate glaze and dilution expressed as a ratio of one to the other to achieve the proper color transparency for the silicate base and top glaze coats.

1.5 SYSTEM DESCRIPTION

- A. A materials-compatible highly vapor permeable decorative coating system offering severe weathering protection for exterior exposure. Install over mineral surfaces.
 - 1. Sol Silicate Coating: An incombustible two coat system with UV and alkaline resistant inorganic pigments in the specified color. Coatings penetrate the surface and in a chemical reaction with the substrate results in covalent and mechanical bonding forming a hard amorphous microporous layer with extremely high vapor permeability that is unaffected by

acids, UV exposure, or air-borne pollutants. Provides weathering protection without reducing substrate vapor permeability.

1.6 SUBMITTALS

- A. Product Data: Submit product data showing material proposed. Submit sufficient information to determine compliance with the Drawings and Specifications. Provide published documentation describing materials, characteristics, and limitations.
- B. Samples:
 - 1. Submit samples for initial color selection. Submit samples of each specified finish. Submit samples in form of manufacturer's color charts showing full range of colors and finishes available. Where finishes involve normal color variations, include samples showing the full range of variations expected.
 - 2. Submit samples for verification purposes. Additional samples may be required to show fabrication techniques and workmanship.
- C. Manufacturer's Instructions: Submit manufacturer's instructions including technical data sheets, material safety data sheets, mixing instructions, application requirements, special procedures, and conditions requiring special attention.

1.7 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Manufacturer Qualifications: Provide evidence that Manufacturer is a firm engaged in the manufacture of silicate coatings of types required, and whose products have been in satisfactory use in similar service for a minimum of thirty years.
 - 2. Applicator Qualifications: Provide evidence Applicator is a firm having a minimum of three years of successful application experience with projects similar in type and scope to that required for this Project, and approved by the manufacturer.
- B. Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and local authorities having jurisdiction. Obtain necessary approvals from such authorities.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the Project site in supplier's or manufacturer's original wrappings and containers, labeled with supplier's or manufacturer's name, material or product brand name, and lot number, if any.
- B. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

1.9 PROJECT CONDITIONS

- A. Environmental Requirements: Do not apply silicate coating until surfaces are cleaned, substrate repairs are complete and cured, and wet work is completed and nominally dry.

1. Substrate and ambient air temperature must be between 41 °F. and 86 °F. Maintain temperature during and after application.
2. Do not apply silicate coating over damp substrate, when rain is expected, in high winds, or on sun-heated substrate during application.

1.10 WARRANTY

- A. Special Warranty: Contractor warrants the work of this Section to be in accordance with the Contract Documents and free from faults and defects in materials and workmanship for the period indicated below. Provide a special warranty extending the one year period of limitations contained in the General Conditions countersigned by the Applicator and the manufacturer.
 1. Warranty Period: Warranty period from date of Substantial Completion is 15 years.
- B. Additional Owner Rights: The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Items specified are to establish a standard of quality for design, function, materials, compatibility, warranty, and appearance. Equivalent products by listed manufacturers are acceptable. The Architect is the sole judge of the basis of what is equivalent.
- B. KEIM Mineral Coatings of America, Inc., 10616 Texland Blvd. #600, Charlotte, NC 28273. Telephone 704-588-2811. Email keim-info@keim.com

2.2 MATERIALS

- A. Patching and binding agents by Keim.
- B. Silicate Coating, Base Coat: Provide sol silicate based opaque coating conforming to DIN EN 1504-2/2.2 and DIN 18.363/2.4.1, without biocides, and less than 1g/l VOC. Meets Non-flammable standard DIN 4102-A2. ASTM E 96 Vapor Permeability – 77 perms, ASTM G 154 Accelerated Weathering – no fading, cracking, peeling, ASTM E 514 62-MPH Wind-Driven Rain Test – no water penetration.
 1. Basis of Design: "KEIM Soldalit," KEIM Mineral Coatings of America, Inc.
- C. Silicate Coating, Top Coat: Provide sol silicate based opaque coating conforming to DIN EN 1504-2/2.2 and DIN 18.363/2.4.1, without biocides, and less than 1g/l VOC. Meets Non-flammable standard DIN 4102-A2. ASTM E 96 Vapor Permeability – 77 perms, ASTM G 154 Accelerated Weathering – no fading, cracking, peeling, ASTM E 514 62-MPH Wind-Driven Rain Test – no water penetration.
 1. Basis of Design: "KEIM Soldalit," KEIM Mineral Coatings of America, Inc.
- D. Dilution for Silicate Coating: Provide sol silicate dilution that is designed for the sol silicate coating system. Meets Non-flammable standard DIN 4102-A2. Less than 1g/l VOC.

1. Basis of Design: "KEIM Soldalit Dilution," KEIM Mineral Coatings of America, Inc.

2.3 EQUIPMENT

- A. Tools for Silicate Coating: Apply by natural bristle façade brush, professional roller, or professional airless spray equipment and back-roll as required for even distribution.

2.4 FINISHES

- A. Silicate Coating: Apply evenly to a smooth mineral matte finish without voids, holidays, or drips.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Examine areas and conditions under which the work is to be applied, and notify the Contractor in writing, with a copy to the Owner and the Architect, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.
 1. Verify substrate is secure, sound, dry, and absorbent, and free of dirt, grease, salts, oil-based paints, release agents, curing agents, and other bond breakers.
 2. Verify substrate has no pretreatments or priming materials applied.
 3. Verify materials to be coated are fully cured to manufacturer recommendations.
 4. Beginning of the work shall indicate acceptance of the areas and conditions as satisfactory by the Applicator.

3.2 PREPARATION

- A. Protection: Lay ground cloths and take measures as necessary to protect surfaces subject to contact by products specified by this Section.
- B. Substrate: prepare substrate in accordance with manufacturers requirements.

3.3 APPLICATION

- A. Conform to reviewed product data, manufacturer's written instructions, and provisions of the Contract Documents.
- B. Plan the work properly.
 1. Work to logical stopping points (corners, seams, architectural features, etc.).
 2. Apply coatings maintaining a wet edge to desired finish as indicated in FINISHES Article.
 3. Protect from damage prior to, during, and for a minimum 24 hours after application.
- C. Water Repellency: Apply wet coats sponging off material that is not absorbed. Surface must be completely dry and application must proceed in dry weather. Flood coating to saturate surface

entails first application of Silan 100 and an interval of ten minutes, and then a second application to fully establish a saturation coating

D. Silicate Coating:

1. Base Coat: Dilute silicate grob coating with 5 percent dilution (25kg with 1.25 liters dilution). Stir well by hand or 600-800 RPM mixing equipment.
 - a. Apply base coat of diluted silicate coating.
 - b. Allow minimum 12 hours drying time.
2. Top Coat: Apply silicate coating undiluted. Stir well by hand or 600-800 RPM mixing equipment.
 - a. Apply top coat of undiluted silicate coating.

3.4 FIELD QUALITY CONTROL

- A. Testing: The Owner reserves the right to invoke test procedures at any time and as often as the Owner deems necessary during the period when coatings are being applied. Tests include, but are not limited to, material analysis and coating thickness.
 1. The Owner may engage the services of an independent inspecting and testing agency to sample the material being used. Samples of material delivered to the Project may be taken, identified, sealed, and certified in the presence of the Contractor.
 2. The inspecting and testing agency will perform appropriate tests for listed characteristics as required by the Owner.
 3. The Owner may direct the Contractor to stop the work if test results show material being used does not comply with specified requirements. The Contractor is responsible to remove non-complying product from the site, pay for testing, and recoat surfaces previously coated with the rejected material. If necessary, the Contractor may be required to remove rejected material from previously coated surfaces if, on recoating with specified material, the two coatings are incompatible.
- B. Repairs: Correct deficiencies in or remove work that does not comply with requirements, repair substrates, and reapply coating.
- C. Additional Testing: Additional testing performed to determine compliance of corrected work with requirements shall be at the Contractor's expense.

3.5 CLEANING

- A. Clean tools, spills, and accidental drips immediately with plenty of water.
- B. Leave applications clean and premises free from residue and debris from work of this Section.

3.6 PROTECTION

- A. Provide final protection and maintain conditions in a manner acceptable to the Applicator to ensure silicate coatings are without damage at time of Substantial Completion.

END OF SECTION

SECTION 101400 – INTERIOR SIGNAGE

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the signage as shown on the drawings and/or specified herein, but not limited to the following:
 - 1. Panel signs with ADA-compliant tactile graphics.
 - 2. Custom fabricated metal panel signs, including etched copy and removable graphic panels.
 - 3. Projecting signs.
 - 4. Cut vinyl lettering & graphics.

1.3 DEFINITIONS

- A. For the purpose of this document the following definitions shall apply:
 - 1. Owner shall mean NYS Parks, Recreation and Historic Preservation, Staatsburg, NY.
 - 2. Designer shall mean LVCK, A Beyer Blinder Belle Studio, New York, NY
 - 3. Architect shall mean Beyer Blinder Belle Architects & Planners, LLP, New York, NY.
 - 4. Contractor shall mean the individual, firm or corporation executing the contract and performing the work under the terms of these Contract Documents.
 - 5. General Contractor shall mean the individual, firm or corporation responsible for the construction of the building, interior, or renovation work on and within which the work which forms the subject of this contract is to be installed.
 - 6. Adhesive shall mean any liquid, aerosol, sheet, tape or foam tape adhesive or solvent bonding system.
 - 7. Artwork shall mean electronic reproducible artwork for any specific graphic components of individual signs, symbols, logotypes, line drawings, etc. to be provided in a scale of at least one quarter full size.
 - 8. Character shall mean any visual element of a sign, including letters, numerals, punctuation marks, symbols, etc.
 - 9. Color fill shall mean any paint, ink, dye, varnish or other material used to fill engraved, etched, or incised characters.
 - 10. Contract Documents shall mean all drawings, schedules, specifications and other items comprising the contract.
 - 11. Date of Substantial Completion shall mean the date upon which the work which is the subject of this contract is sufficiently complete to enable the Owner to use it for the purpose and in the manner in which it was intended.

12. Sign shall mean any sign, graphic work to be applied to an architectural component, or other element described or specified in the Contract Documents.
13. Graphic Components shall mean all typography, illustrations, line drawings, maps, charts, etc. forming part of a sign.
14. Mechanicals shall mean electronic templates (Adobe Illustrator) for all the graphic components of any specific sign to a scale of at least one quarter full size.
15. Paint shall mean any paint, ink, dye, varnish or other coating material.
16. Sign shall mean any sign, graphic work to be applied to an architectural component, or other element described or specified in the Contract Documents.

1.4 EXTENT OF SIGN PROGRAM REQUIREMENTS

A. Scope of Sign Types

TYPE	DESCRIPTION	QTY
D1	Donor Panel	1
D2	Members Panel	1
G1	Exit Stair ID	4
G2	Stairwell Egress	4
T1	Restroom ID	1
T2	Restroom Blade	1
T3	Restroom Directional	1
T4	Accessible Symbol Decal	1
R1	Occupancy	1

1.5 DESIGN

- A. All constructional, engineering and anchoring details indicated on the Design Consultant's drawings are meant as suggestions for design intent only. The Sign Contractor shall take full responsibility for the correct and safe engineering of all sign types and the way in which they are supported and anchored, and shall submit in the shop drawings any alternative details which are necessary to result in a satisfactory and safe final product. The Sign Contractor shall indemnify and hold harmless the Design Consultant against any claim resulting from failure of, or damage caused by, the installed signs.
- B. Comply with all current codes and requirements of all relevant regulatory agencies, as referenced in section 1.8. Where so required, tests shall be made and certificates of conformance shall be secured at the expense of the Sign Contractor.

- C. All film reproductions prepared by the Sign Contractor for the production of the work under this contract shall be the property of the Owner, and shall be delivered to the Owner upon request.

1.6 GRAPHICS / DRAWINGS

A. General requirements

1. Drawings are for concept only. Sign contractor shall be responsible for providing a product which meets the requirements of both the specifications and the drawings, and which works effectively, efficiently and safely.
2. Written dimensions on the Drawings shall take precedence over scaled dimensions. Sign Contractor shall be responsible for all dimensioning and must notify Design Consultant of any discrepancies, to await clarification, prior to proceeding.
3. Failure to request clarification of any inadequacy, omission or conflict will not relieve the Contractor of responsibility.

B. Layout and Typography

1. Typefaces used:
 - a. Sign Types G1, G2, T1, R1: Proxima Nova Medium
 - b. Sign Type T3: Garamond Regular
 - c. Sign Types D1, D2, T2, T4: Artwork to be provided by Designer.
2. The layout of the copy on the drawings and the wording indicated in the message schedule is based on scale calculations within given and estimated areas. Should any conflict arise in the final copy layout, notify the Designer before proceeding. In no event shall size, number of lines of copy or specified letter, word and/or line spacing be modified to get copy to fit.
3. Contractor to prepare and provide sign and type layouts to comply with the requirements indicated in the Construction Intent documents for content, graphic elements, symbols, type/number style, sizing, letter spacing, positioning, finishes, and colors.
4. The manufacturer's name, trade name or trademark shall not appear on any visible surface of any of the work.

C. Artwork

1. The Construction Documents include specifications for all graphic components (i.e. type, symbols, maps, diagrams, etc.). Sign Contractor to create and supply all Artwork and mechanicals necessary to complete the work, except where noted in Contract Documents.

1.7 SIGN CONTRACTOR QUALIFICATIONS

- A. Sign Contractor shall provide references of at least ten (10) clients who have used their services to the satisfaction of the Owner and Design Consultant.
- B. Sign Contractor shall provide evidence of successfully completing manufacture and installation of five (5) projects of similar scope to this bid within the preceding five (5) years.

- C. Sign Contractor must be able to demonstrate that they are in compliance with all workers safety and environmental regulations at their location of manufacture.

1.8 REFERENCES

- A. Comply with the following codes, as required:
 - 1. ICC/ANSI A117.1.2007 Standard on Accessible and Useable Buildings and facilities or applicable standards or authorities having jurisdiction.
 - 2. 2010 ADA Standards for Accessible Design, "2010 Standards." Includes: Title II and Title III Regulations; 2004 ADAAG– ADA Accessibility Guidelines for Buildings and Facilities.
 - 3. International Building Code 2020, New York State Edition.
 - 4. International Fire Code 2020, New York State Edition.

1.9 SUBMITTALS

- A. Submit 3 sets, unless otherwise specified, of all shop drawings, copies of camera-ready artwork and any other submissions required below to the designer for approval prior to fabrication or installation.
- B. Submit a detailed production and installation schedule for all sign types including dates for submission and approval of all required samples, shop drawings and other submissions required under this contract.
- C. Submit shop drawings showing proposed details of fabrication and installation of all components. These shall include large-scale details of construction, anchorages and accessory items.
- D. All variations from the Contract Documents shall be shown on the shop drawings and shall be specifically identified as such by the Contractor. All proposed variations shall equal or surpass the requirements of the originally specified items with regard to appearance, finish, material qualities, size, etc.
- E. Submit manufacturer's printed product data, specifications and installation instructions for all materials and for each item to be supplied or incorporated into the work.
- F. Submit samples for each type of finish material specified. Designer's review of samples will be for color and texture only. Compliance with all other requirements is the exclusive responsibility of the Contractor. Samples will be kept by the Designer as a record to match against completed installation.
- G. Submit 2 samples (one to Owner; one to Designer) of the following sign types before manufacture of any of the final signs of any type. The Designer reserves the right to adjust final details, sizes, colors, materials and finishes to be incorporated in the production of the final signs.
 - 1. Type D1: 6"x6" partial sample, including etching, paint infill, and background finish.

2. Type D2: 6"x12" partial sample, including fabricated frame with opening, and insert.
3. Types G1 and T4: full scale samples.

1.10 GRAPHIC REQUIREMENTS

- A. For applications such as vinyl self adhesive characters, type or patterns may be generated directly using a computer driven plotter or cutter. In such an event typefaces must match specified cuts exactly.
- B. Typesetting shall have proper letter, word and line spacing as specified in the contract documents and characters shall be sharp, accurately aligned on their baseline, and of consistent density.
- C. Installed work shall be accurately reproduced from the artwork. Characters with rounded positive or negative corners, nicked, cut or ragged edges, etc., will not be accepted. Align letterforms to maintain a baseline parallel to the overall format, unless otherwise specified. Specified margins shall be accurately maintained.
- D. Copy shown on any drawings and templates is intended as a guideline for layout and type size only. Refer to the schedules for exact wording.
- E. The layout of the copy on the drawings and the wording indicated in the message schedule is based on scale calculations within given and estimated areas. Should any conflict arise in the final copy layout, notify the Designer before proceeding. In no event shall size, number of lines of copy or specified letter, word and/or line spacing be modified to get copy to fit.
- F. The Contract Documents include drawings and specifications for all graphic components (i.e. type, symbols, etc.). Where reproducible artwork or mechanicals are not to be provided by the Designer, create all artwork and mechanicals necessary to complete the work.

1.11 DELIVERY STORAGE AND HANDLING

- A. Clearly label the contents of all packages.
- B. Deliver, store and handle all packages so as to protect them from any kind of damage. Inspect all components for evidence of damage at site before installation. Damaged materials shall not be incorporated into the work and shall be removed from the site immediately.
- C. The Contractor shall replace at his own expense all work judged damaged or defective before Substantial Completion.

1.12 MAINTENANCE

- A. Before Substantial Completion, provide the Designer with one copy, and the Architect with two copies of clearly written instructions for proper maintenance of all work including electrical systems. Instructions shall address periodic cleaning, service access, painting, color specifications, re-lamping, replacement procedures, etc. Provide detailed troubleshooting and "what to check" lists for all customized electrical or mechanical systems.

1.13 WARRANTY

- A. General: The following warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Sign warranty: Submit a written warranty signed by manufacturer, agreeing to repair or replace panels that fail during the specified warranty period. Failures include, but are not limited to, the following:
 - 1. Coating degradation
 - 2. Chalking
 - 3. Fading
 - 4. Structural failure
 - 5. Delamination of applied graphics
 - 6. Delamination or degradation of applied anti-graffiti coatings
- C. Defects or faulty materials found during the warranty period will be identified to Sign Contractor by Owner. Such defective materials are to be repaired and/or replaced at Sign Contractor's own expense, together with any damage to furnishings, fixtures, finishes, or other equipment that may be damaged as a result of these effects.
- D. If Sign Contractor shall fail to repair, replace, rebuild, or restore defective or damaged work promptly after receiving notice, Owner shall have the right to have the work completed by others in the same manner as provided for in the completion of a defaulted contract, and to deduct the cost thereof from the amount so deposited hereunder. The balance, if any, shall be returned to Sign Contractor without interest. If the amount so deposited is insufficient to cover the cost of such work, Sign Contractor shall be liable to pay such deficiency on demand by Owner.
- E. Owner certificate setting forth the fair and reasonable cost of repairing, replacing, rebuilding, or restoring any damaged or defective work when performed by one other than Sign Contractor and this cost shall be binding and conclusive as to the amount thereof upon Sign Contractor.
- F. Warranty Period: 5 years.

1.14 QUALITY ASSURANCE

- A. All materials shall be of highest quality, and shall be carefully fabricated in accordance with Contract Documents. Sign Contractor shall ensure that all materials used are inert and that galvanic reactions do not occur between any materials used, and between Sign materials and Architectural mounting surfaces.
- B. Product Data: Provide manufacturer's technical data and installation instructions for each type of sign required.

1.15 PROJECT CLOSE OUT

- A. Sign Contractor shall turn over to Owner all operating and maintenance data, warranties, and bonds, spare parts, and maintenance materials as applicable.
- B. Submit 2 certified copies of each page of all schedules stating that installation is complete and correct prior to requesting approval of Substantial Completion.

PART 2 MATERIALS AND CONSTRUCTION

2.1 ACRYLIC SHEET

- A. Acrylic sheet shall be premium quality as manufactured by Rohm and Haas (Plexiglass), Du Pont (Lucite), American Cyanamid, or approved equal.
- B. The edges of acrylic sheet components and any drilled holes shall be smooth and free of saw marks, chips, cracks or other blemishes and shall be square to the face. All visible edges are to be hand or machine polished unless specified otherwise. Flame polishing shall not be permitted.
- C. Where acrylic sheet is 'glazed' or contained in a frame it shall be cut to allow for expansion and contraction.
- D. Laminated sheets and welded joints shall be free of gaps and bubbles and shall be continuously sealed and clear.
- E. Use special care in the fabrication and installation of acrylic sheets to prevent scratching, staining or other imperfections.
- F. When there is no possibility of danger from other work to be performed, remove all protective coverings on acrylic sheet and remove any scratches using an approved acrylic polish. Remove all internal and external dust and other dirt and treat all surfaces with an anti-static polish on completion.
- G. Provide Owner with complete cleaning instructions recommended by acrylic manufacturer for safe cleaning of acrylic sheets.

2.2 ACRYLIC SHEET, NON-GLARE

- A. Non-glare acrylic sheet shall be premium quality such as manufactured by Rohm and Haas, Du Pont, American Cyanamid or approved equal.

2.3 THERMOFORMED (COMPRESSION MOLDED) ACRYLIC

- A. Acrylic with a tensile strength that meets ASTM D-638 and a flexural strength that meets ASTM D-790. It has a self-ignition temperature that meets ASTM D-1929 with a burn rate meeting ASTM D-635. It measures at D-785 on the Rockwell Hardness scale. It is suitable for both an interior and exterior environment.
- B. Overall thickness of sign to be 1/4", unless otherwise specified.

- C. Corners to be Square. Edges to be Straight. Thermoformed plate shall be laser or rotary cut for precise dimensions according to specifications.
- D. Characters and pictograms shall be compression molded and raised 1/32" to meet ADA compliance regulations. Raised text shall be in all capital letters and accompanied by corresponding Grade 2 Braille.

2.4 PHOTOPOLYMER

- A. Photopolymer: Provide sheet photopolymer Nova Polymers Inc. NovAcryl PT Series PT-236 or approved equal, in size and type specified in Sign Program bid documents.
- B. Aluminum-Backed Photopolymer: Provide sheet photopolymer Jet USA Corp. LS1-175-AB Alum. or approved equal, in size and type specified in Sign Program bid documents.
- C. Provide moisture resistant polyamide nylon or exterior grade photopolymer resin with minimum face relief of .032" and maximum face of .040" in compliance with ADA regulations and specifications. Photopolymer material to be of single piece construction using only clear, recyclable PETG or cellulose-based phenolic in specified base thickness. Laminated photopolymers are not acceptable.
- D. Process to factory specifications to be approved methods, equipment, and fabrication techniques. Use only computer generated, professional grade film. Vellum film is not acceptable. Matthews or Carbit automotive grade acrylic polyurethane finishes to be used. Lacquer-based finishes are not acceptable.

2.5 BRAILLE

- A. Provide all Grade 2 Braille translations, as required to conform to American National Standards ICC/ANSI A117.1, 2003, as referenced in section 1.10.

2.6 ALUMINUM

- A. Aluminum extrusions shall be ASTM B209, 6063-TS alloy, shop primed. Extrusions shall be of best quality with no die lines or other imperfections.
- B. Aluminum sheet and plate shall be ASTM B209, 3003 alloy, shop primed. Sheet and plate shall be of best architectural quality; stretcher leveled and visually flat.

2.7 BRASS

- A. Extruded Shapes: ASTM B455, Alloy UNS No. C38500 (architectural bronze).
- B. Plate: ASTM B36, alloy UNS No C28000 (muntz brass, 60 percent copper).
Plate: ASTM B21, alloy UNS No C46400 (naval brass, 60 percent copper).

2.8 ETCHED METAL PLATES

- 1. Metal: Bronze.

2. Plate finish: satin antique patina finish, with a very light statuary non directional tone and natural highlights.
 3. Recessed copy depth: 1/64-inch.
 4. Recessed copy paint infill color: As specified on drawings.
- B. Back-Up Plate: Where required, cut back-up plates from solid plate material of thickness indicated. Produce plates with square cut, smooth edges. Comply with requirements indicated for finish and size.
- C. Coordinate selection of concealed pins, frames, closures, and fasteners with sign materials to ensure against corrosion and electrolytic reactions.

2.9 FINISHES

- A. Colors and Surface Textures: For exposed sign material that requires selection of materials with integral or applied colors, surface textures or other characteristics related to appearance, provide color matches indicated, or if not indicated, as selected by the Designer.
- B. Metal Finishes: Comply with NAAMM "Metal Finishes Manual" for finish designations and applications recommendations.

2.10 VINYL

- A. Non-reflective film: Provide opaque, non-reflective vinyl film with repositionable adhesive backing. Adhesive shall be positionable and pressure activated. Minimum application temperature to be
- B. 40° F (4° C). Maximum application temperature to be 100° F (38° C). When applied in accordance with manufacturers recommended procedures, the film is to have an exterior exposure life of 7 years.
- C. Properties
1. Thickness: .003" - .004"
 2. Tensile strength: 5 lbs./in. at 73° F
 3. Dimensional stability: 1/64"
 4. Temperature Range: -40° F to +200° F
 5. Resistance: no effect at -73° F and 40° F
 6. Adhesion to etched aluminum: 7.0 lbs/in.
- D. Vinyl Film: Provide opaque non-reflective vinyl film, 0.0035" minimum thickness, with pressure sensitive adhesive backing, suitable for exterior as well as interior applications.

2.11 PAINT, INK AND VARNISHES

- A. All colors shall be exactly reproduced as specified and shall match submitted samples.
1. Paint Manufacturer: As approved by the Designer.

- B. All paint shall be applied using a high pressure spray in dust-free conditions and shall be allowed to dry or cure properly before being moved.
- C. Painted surfaces and other applied finishes shall have a smooth, even finish and be free of imperfections, marks, scratches, embedded dirt, wave patterns or other irregularities.
- D. Paint required in fabrication, including paint for lettering, screened copy, subsurface copy, etc. shall be compatible with the materials to which it is applied and shall be guaranteed not to cause discoloration, deterioration or delamination for any reason, including exposure to heat, sunlight, weathering or other environmental conditions.
- E. Paints shall be precisely identified on the shop drawings and submitted samples.
- F. Prime coats or other surface pre-treatments, where recommended by the manufacturer of the paint, shall be included in the work.

2.12 ADHESIVES (INCLUDING TAPES)

- A. Adhesives required in fabrication and installation shall be compatible with the materials to be laminated or adhered.
- B. Adhesives shall be used in accordance with the recommendations of the manufacturer of the adhesives and the material to be laminated or adhered.
- C. Surfaces on which adhesives are to be applied shall be smooth, clean and free of dust, dirt, grease, fingerprints or other foreign matter.
- D. Adhesives shall be guaranteed not to deteriorate, discolor, delaminate or fail in adhesion for any reason including exposure to heat, sunlight, weathering or other environmental conditions.
- E. Adhesives shall not change the color of, or in any way deteriorate, the materials to which they are being applied.
- F. Visible joints shall be even and free from air bubbles and other defects.
- G. Adhesive foam mounting tapes for permanent installation shall be premium quality double coated acrylic foam tape such as manufactured by 3M (VHB Tape) or approved equal. Urethane foam tapes will not be allowed.
- H. Unless otherwise indicated, when used for permanent installation, adhesive foam mounting tape shall be 1/2" wide and 1/16" thick. Coverage shall be at least one continuous strip of tape at four inch intervals. No tape shall be closer than 1/2" from the edge of any component.
- I. Silicone adhesives shall be clear, ready-to-use, high performance, premium quality materials, such as manufactured by General Electric (GE 1200), or approved equal.
- J. Epoxy adhesives shall be two-component, thermal-setting, premium quality materials such as manufactured by Devcon (Two-Ton Epoxy), or approved equal.

2.13 FASTENERS AND HARDWARE

- A. All exposed screws shall be countersunk, unless otherwise noted.
- B. Non-ferrous metal or galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance and to prevent staining of surrounding surfaces.

2.14 PIN MOUNTS

- A. Pin mounts shall be fabricated from threaded studs permanently fixed to the component to be mounted. All studs shall be square to the face of the component
- B. Epoxied or welded studs shall be fabricated with no distortion or discoloration of the face of the component or any other exposed surfaces.
- C. There shall be a minimum of four studs on plaques, two studs on individual typographic characters and one stud on punctuation marks.
- D. Silicone adhesive shall be used to install pin mounts in walls or other supporting surfaces. Receiving hole shall be of sufficient size to allow positioning, and shall have clean edges and neat appearance.
- E. Support components with foam tape or other mechanical means that does not damage surrounding surfaces, until permanent adhesives are set.

PART 3 – EXECUTION

3.1 GENERAL REQUIREMENTS

- A. Submit a detailed production and installation schedule for all sign types including dates for submission and approval of all required samples, shop drawings and other submissions required under this contract. Schedule to allow for adequate review and possible re-submittals without jeopardizing the project schedule.
- B. Submit manufacturer's printed product technical data, specifications and installation instructions for all materials and for each item to be supplied or incorporated into the work.
- C. All submissions shall be reviewed and received final approved by Design Consultant, in addition to stamped engineering drawings, where required prior to fabrication of project sign requirements.
- D. Sign Contractor is responsible for verifying all field conditions and dimensions prior to preparation of shop drawings to ensure proper fit of work. Should Sign Contractor find any discrepancies they shall notify the Design Consultant at once, to await clarification, prior to proceeding.
- E. All submittals will be reviewed and stamped with Design Consultant's review stamp. Submissions to include appropriate space for review stamp and comments.

- F. Include drawing index with shop drawing submissions.

3.2 INSPECTION

- A. Provide access to the Designer to inspect all work in progress at the site of fabrication or installation.
- B. Inspection and approval of all fabricated and assembled work shall take place prior to delivery to the site and installation.

3.3 CONSTRUCTION

- A. Field measure all conditions prior to fabrication.
- B. All work shall be constructed as complete systems, including all stiffeners, fasteners, welding, sealants, jointing, miscellaneous pieces and material thicknesses, etc.
- C. Confer with the Designer regarding all critical items before shop drawings are started, and advise the Designer of any significant discrepancies in field measurements or operational difficulties prior to fabrication. Obtain the Designer's written approval for any resulting deviations from the specifications and/or drawings that may become necessary.
- D. Work shall be performed by competent workmen and shall be of the best quality, free from defects impairing strength, durability and appearance. All items shall be made of new materials.
- E. Connections, angles, shapes and details are suggestive and are to be sized, reinforced and detailed as required for their particular application. Details not shown are to be at least equal in quality to those detailed.
- F. Methods of fabrication, joining, finishing and installation of all components and work shall be according to the manufacturer's instructions for the use of any products, materials, fittings and equipment used in their construction.
- G. All details of construction are to be engineered with appropriate strength materials and finished to withstand the potential rigors of their installed locations.
- H. All work shall be uniform in detail design and finish.

3.4 INSTALLATION

- A. Install the work in a well organized and timely manner. Whenever possible, the work shall be installed as one continuous activity. The installation process shall be coordinated to accommodate the needs of both the Owner and Designer.
- B. Inform the Designer, at least two weeks in advance, of any intended installation and arrange, at the Designer's convenience to have all patterns in place, and initial signs of each type ready for installation and approval by the Designer on site before proceeding with the rest of the installation. It is important that such approval processes be organized efficiently so that approvals can take place in a timely manner.

- C. Prepare all encountered surfaces as required to receive signage.
- D. Follow recommendations and instructions for installation as provided by component manufacturers. Notify the Designer in writing if such installation will not provide permanent, rigid installation within site conditions.
- E. No installation procedures or materials shall be used that will in any way change the visual quality or in any manner have an adverse effect on adjacent materials and surfaces.
- F. Protect all adjacent surfaces from damage during installation. Restore or replace any damaged surfaces to original condition and appearance.
- G. Install all signs at the locations and heights specified in the Contract Documents. All signs shall be installed level and plumb and perpendicular to the surface upon which they are mounted, unless otherwise specified.
- H. Coordinate all scheduling and installation procedures with the Owner, Designer, General Contractor and others to avoid delays or additional costs.
- I. Where appropriate, notify Designer in writing of any visual or physical conflicts.
- J. All work shall be provided with suitable protective coverings during shipment and installation. Remove and replace protective coating for inspection when requested. Final removal of protective coatings shall take place only when there is no danger of damage from further work, and all protective coatings shall be removed simultaneously from similarly finished items to prevent uneven oxidation or discoloration.
- K. Remove packing and construction materials from the site. Leave premises broom clean and ready for work under other contracts or ready for use. Vacuum any carpets and spot clean where if necessary.
- L. Exposed surfaces of all work shall be left clean and free of glue, fingerprints, dirt, grease, dust or any other imperfections upon completion of installation.

3.5 FABRICATION AND INSTALLATION

- A. General: Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.
 - 1. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance.
- B. Wall Mounted Panel Signs: Attach panel signs to wall surfaces using the methods indicated below and as specified by manufacturer:
 - 1. Vinyl-Tape Mounting: Use double-sided foam tape, of thickness indicated, to mount signs to smooth, nonporous surfaces. Do not use this method for vinyl-covered or rough surfaces.

2. **Silicone-Adhesive Mounting:** Use liquid silicone adhesive recommended by the sign manufacturer to attach sign units to irregular, porous, or vinyl-covered surfaces. Use double-sided vinyl tape where recommended by the sign manufacturer to hold the sign in place until the adhesive has fully cured.
 3. **Mechanical and Shim Plate Mounting:** Provide concealed aluminum shim plates 1/8" thick, with pre-drilled and countersunk holes, at locations indicated and where other mounting methods are not practicable. Attach the plate with fasteners and anchors suitable for secure attachment to the substrate. Attach panel sign units to the plate using the method specified above.
- C. **Bracket-Mounted Units:** Provide the manufacturer's standard brackets, fittings, and hardware as appropriate for mounting signs that project at right angles from walls and ceilings. Attach brackets and fittings securely to walls or ceilings with concealed fasteners and anchoring devices to comply with manufacturer's directions.

3.6 CLEANING AND PROTECTION

- A. At completion of the installation, clean soiled sign surfaces in accordance with the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

END OF SECTION

SECTION 101426 - POST AND PANEL SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Nonilluminated post-and-panel signs.
- B. Related Requirements:
 - 1. Section 033000 "Cast-in-Place Concrete" for concrete foundations, concrete fill in postholes, and setting anchor bolts in concrete foundations for signs.

1.3 COORDINATION

- A. Furnish templates and tolerance information for placement of sign-anchorage devices embedded in permanent construction by other installers.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For signage.
 - 1. Include fabrication and installation details and attachments to other work.
 - 2. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
 - 3. Show message list, typestyles, graphic elements, and layout for each sign at least 1/4 full scale.
- C. Required finish samples – Contractor shall submit each of the following samples as three (Qty 3) control samples: 1 for Architect, 1 for Owner, 1 to be held by Contractor, upon approval:
 - 1. 6x6 inch samples of each specified vinyl color
 - 2. 6x6 inch samples of each specified paint color.
 - 3. 6x6 inch samples of an HPL graphic panel, from Designer provided artwork.

4. Variable Component Materials: 6-inch of each base material, character or graphic element, in each exposed color and finish not included in other Samples.
 5. Exposed Accessories: Full-size sample of each accessory type.
- D. Required prototypes – Contractor shall submit the following prototypes. Prototypes to be used as control set. Full prototype can be used as final deliverable, if approved with no changes. Prototypes to be submitted and approved prior to any final fabrication:
1. Partial prototypes:
 - a. Sign Type G3
 - b. Typical sign post, including specified post base and hardware
 2. Full scale prototypes:
 - a. Sign Types A1, K2, P2A
 - b. Sign Insert Types G3A, G3B
- E. Product Schedule: For post-and-panel signs. Use same designations indicated on Drawings or specified.
- F. Sign Engineering: Include structural analysis calculations for signs indicated to comply with design loads; signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish two (2) sets of specialty tools for assembling signs and replacing variable sign components.

1.7 QUALITY ASSURANCE

- A. Qualifications: Provide work of this Section executed by competent installers with minimum five (5) years experience in the application of Products, systems and assemblies specified and with approval and training of the Product manufacturers.
- B. The intent of the Contract Documents is to provide everything necessary for a complete contract. All drawings and specifications are mutually dependent. In the event of a discrepancy, or an error, neither document rules over the other. Notify Consultant if any discrepancies arise for direction on how to proceed.
- C. The Consultant must be notified of any variations of conditions as shown on these drawings. It shall be the Sign Contractor's responsibility to obtain and utilize the most current and up-to-date plans and specifications for all construction and installation work.

- D. Work done and material furnished shall be of superior quality in every respect.
- E. The Owner, Consultant, and / or Construction Manager shall reserve the right to reject any shop drawings, samples, or other submittals, as well as any finished product or installation that does not meet or exactly equal the standard of quality established. Any such decision will be considered final and not subject to recourse.
- F. The Sign Contractor must guarantee that only new materials are being used for this Work.
- G. Any claims for work carried out on instructions by others will not be accepted or honored.
- H. Provide site administration and inspection of this part of the Work.

1.8 PROJECT CONDITIONS

- A. Sign Contractor is responsible for ensuring that all site conditions have been thoroughly reviewed and coordinated prior to fabrication.
 - 1. Field Measurements: Verify locations of anchorage devices embedded in permanent construction by other installers by field measurements before fabrication, and indicate measurements on Shop Drawings.
- B. Sign contractor is responsible for coordinating with the General Contractor and other trades to ensure a successful fabrication and installation of all sign products.

1.9 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Deterioration of finishes beyond normal weathering.
 - b. Deterioration of embedded graphic image.
 - c. Separation or delamination of sheet materials and components.
 - 2. Warranty Period: Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Signs and supporting elements shall withstand the effects of gravity and wind loads.

- B. Thermal Movements: For exterior signs, allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change: 120 deg F, ambient.
- C. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design", and ICC A117.1.

2.2 POST-AND-PANEL SIGNS

- A. Post-and-Panel Sign: Sign of single-panel configuration; with smooth, uniform surfaces and support assembly; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:
 - 1. Solid-Sheet Sign Panels, Returns, and Back: Aluminum sheet with finish specified in "Sign-Panel-Face Finish and Applied Graphics" Subparagraph and as follows:
 - a. Thickness: 0.125 inch.
 - b. Surface-Applied Graphics: Applied vinyl film, or Direct Print, as indicated per sign type.
 - 2. Laminated, Aluminum-Sheet Sign Panels: Aluminum sheet laminated to both sides of phenolic core sheet with painted edges.
 - a. Composite-Sheet Thickness: 0.25 inch.
 - b. Surface-Applied Graphics: Applied vinyl film.
 - 3. High Pressure Laminate Graphics. Composite, Phenolic-Core Sign Panels: Solid phenolic panel core with integral subsurface graphic image covered with integral, polymeric face layer.
 - a. Composite-Sheet Thickness: As indicated per sign type.
 - 4. Sign-Panel-Face Finish and Applied Graphics:
 - a. Painted Finish and Graphics: Manufacturer's standard, factory-applied exterior-grade sign paint, in color as indicated on drawings.
 - b. Photo-Image Graphics: Manufacturer's standard multicolor, 600-dpi halftone or dot-screen image.
 - 5. Posts:
 - a. Material: cedar wood.
 - b. Shape: Square.
 - c. Size: As indicated on Drawings per sign type.
 - d. Finish: natural.
 - e. Installation Method: Standoff post base, Simpson Strong-Tie ABU46Z, with MFR's recommended corrosion protection materials, coatings, and fasteners for "wet service" conditions.

2.3 MATERIALS

- A. Aluminum Sheet and Plate: ASTM B209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- B. Aluminum Extrusions: ASTM B221, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- C. Fiberglass Sheet: Multiple laminations of glass-fiber-reinforced polyester resin with UV-light stable, colorfast, nonfading, weather- and stain-resistant, colored polyester gel coat, and with manufacturer's standard finish.
- D. Vinyl Film: UV-resistant vinyl film of nominal thickness indicated, with pressure-sensitive, permanent adhesive on back; die cut to form characters or images as indicated on Drawings and suitable for exterior applications.
- E. Paints and Coatings for Sheet Materials: Inks, dyes, and paints that are recommended by manufacturer for optimum adherence to surface and are UV and water resistant for colors and exposure indicated.
- F. Wood Posts: Wood posts shall conform to the details and dimensions indicated on the Drawings. Wood posts shall be straight, sound, and seasoned with ends sawed off square or as indicated. All knots shall be trimmed flush with the surface. Wood posts shall be peeled and treated with preservative in accordance with AASHTO M133.

2.4 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following unless otherwise indicated:
 - 1. Use concealed fasteners and anchors unless indicated to be exposed.
 - 2. For exterior exposure, furnish stainless-steel devices unless otherwise indicated.
 - 3. Exposed Metal-Fastener Components, General:
 - a. Fabricated from same basic metal and finish of fastened metal unless otherwise indicated.
 - b. Fastener Heads: For nonstructural connections, use screws and bolts with tamper-resistant, Allen-head slots unless otherwise indicated.
- B. Anchoring Materials:
 - 1. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.
 - a. Water-Resistant Product: Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.5 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
 - 1. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in locations concealed from view after final assembly.
 - 2. Mill joints to tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
 - 3. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed joints of flux, and dress exposed and contact surfaces.
 - 4. Conceal fasteners and anchors unless indicated to be exposed; locate exposed fasteners where they will be inconspicuous.
 - 5. Internally brace signs for stability, to meet structural performance loading without oil-canning or other surface deformation, and for securing fasteners.
- B. Sign Message Panels: Construct sign-panel surfaces to be smooth and to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch (1.5 mm) measured diagonally from corner to corner.
- C. Post Fabrication: Fabricate posts designed for structural performance indicated and of lengths required for installation method indicated for each sign.
 - 1. Direct Burial: Fabricate posts 48 inches longer than height of sign to permit direct burial or embedment in concrete foundations or concrete-filled postholes.

2.6 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Directional Finishes: Run grain with long dimension of each piece and perpendicular to long dimension of finished trim or border surface unless otherwise indicated.
- D. Organic, Anodic, and Chemically Produced Finishes: Apply to formed metal after fabrication but before applying contrasting polished finishes on raised features unless otherwise indicated.

2.7 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, Class I, 0.018 mm or thicker.

- B. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs.
- C. Verify that anchorage devices embedded in permanent construction are correctly sized and located to accommodate signs.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install signs using installation methods indicated and according to manufacturer's written instructions.
 - 1. Install signs level, plumb, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Install signs so they do not protrude or obstruct according to the accessibility standard.
 - 3. Before installation, verify that sign components are clean and free of materials or debris that would impair installation.
 - 4. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

3.3 INSTALLING POSTS

- A. Vertical Tolerance: Set posts plumb within a tolerance of 1/16 inch in 3 feet.
- B. Direct-Burial Method:
 - 1. Excavation: Excavate posthole to dimensions indicated. Reconstruct subgrade that is not firm, undisturbed, or compacted soil, or that is damaged by freezing temperatures, frost, rain, accumulated water, or construction activities by excavating an additional 12 inches, backfilling with satisfactory soil or well-graded aggregate, and compacting to original subgrade elevation.
 - 2. Setting in Earth: Set post in position, support to prevent movement, and backfill with satisfactory soil or well-graded aggregate as recommended in writing by manufacturer. Place and compact backfill in 6-inch lifts, compacting each lift.

3. Setting in Cast-in-Place Concrete: Set post in position, support to prevent movement, and place concrete for concrete foundation as indicated on Drawings.
4. Setting in Preformed Hole in Concrete Foundation: Form or core drill holes in concrete foundation not less than 3/4 inch larger than outside dimension of post for installing posts in concrete. Set post in position, shim to prevent movement, and fill annular space between post and hole with anchoring cement, mixed and placed to comply with manufacturer's written instructions.
 - a. Leave anchorage joint exposed with 1/8-inch anchoring material sloped away from post.

C. Baseplate Method:

1. Preset Anchor Bolts: Set post baseplate in position over anchor bolts projecting from concrete foundation, shim and support post to prevent movement, place washers and nuts, and tighten. Fill shim space with nonshrink, nonmetallic grout, mixed and placed to comply with manufacturer's written instructions.
2. Drilled-in-Place Anchor Bolts: Set post baseplate in position over concrete foundation, locate and drill anchor holes, shim and support post to prevent movement, place washers and anchor bolts, and tighten. Fill shim space with nonshrink, nonmetallic grout, mixed and placed to comply with manufacturer's written instructions.

D. Sleeve Method: Set post in position in sleeve and support post to prevent movement, fill annular space between post and sleeve with anchoring cement, mixed and placed to comply with manufacturer's written instructions.

1. Leave anchorage joint exposed with 1/8-inch anchoring material sloped away from post.

E. Reverse-Sleeve Method: Set post in position over the projecting insert and support post to prevent movement, drill posts and inserts for through bolts, and install and tighten through bolts.

3.4 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

APPENDIX A:
Sign Post Base: Simpson Strong-Tie ABU46Z (page 1 of 2)

APPENDIX A:

Sign Post Base: Simpson Strong-Tie ABU46Z (page 2 of 2)

END OF SECTION 101426

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SECTION 102113 TOILET CUBICLES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the toilet cubicles as shown on the drawings and/or specified including, but not necessarily limited to, the following:
 - 1. Floor-anchored, overhead braced toilet partitions.
 - 2. Wall hung urinal screens.
 - 3. Hardware and accessories.

1.3 RELATED SECTIONS

- A. Gypsum Drywall - Section 092900.
- B. Tile - Section 093013.
- C. Toilet Accessories - Section 102800.

1.4 QUALITY ASSURANCE

- A. Field Measurements: Take field measurements prior to fabrication to ensure proper fitting of the work.
- B. Inserts and Anchorages: Furnish inserts and anchoring devices which must be built into other work for the installation of toilet partitions and related work. Coordinate delivery with other work to avoid delay.

1.5 SUBMITTALS

- A. Shop Drawings: Before any of the materials of this Section are delivered to the job site, submit the following:
 - 1. Room layouts and elevations for all areas, with dimensions based on actual dimensions taken at job site.
 - 2. Materials, finishes, details of construction, gauges of metal, hardware, fastening and anchoring conditions and relation to adjoining constructions.
- B. Samples: Submit the following:
 - 1. One 12" x 12" sample of finish and color indicated.
 - 2. One sample of each type of hardware and fitting item including related fasteners.

- C. Templates: Submit templates to other trades as required for support of toilet partitions.

PART 2 PRODUCTS

2.1 TOILET PARTITIONS

- A. Product: Thrislington Flow Glass Toilet Cubicles by Thrislington Cubicles Limited.
 - 1. Configuration: Floor-anchored, overhead-braced partitions; extruded headrail finished to complement glass color.
 - 2. Height and Toe Clearance: Per architectural drawings.
- B. Materials: door, fascia panels and divider panels.
 - 1. Door: 3/4" (18mm) finished panel consisting of compact grade laminate core (phenolic) with a decorative finish. Leading edge of door is rebated to ensure full privacy, all edges are polished.
 - 2. Fascia: 2-3/8" (59mm) finished thickness, consisting of two 1/2" (12mm) compact grade laminate (phenolic) panels, polished to all visible edges, fixed to front and rear of black anodized aluminum framework
 - 3. Divider Panel: 1/2" (12mm) compact grade laminate (phenolic), polished to all visible edges.
- C. Framework:
 - 1. Material: Full black anodized aluminum frame using Aluminum Alloy 6063T6 having a 5 micron anodized finish.
 - 2. Headrail: Extruded aluminum finished with black anodizing as a standard, to complement the edges of the compact grade laminate. Alternate finishes are available to the framework. Headrail finished with matching high pressure laminate to the front Face, to match the finish of the cubicle front.
 - 3. Door: Stainless steel pivot blocks are affixed into factory inserts bonded within the door and are suspended from a structural aluminum headrail located onto floor fixed pivot bracket.
 - 4. Divider Panels: Suspended 3/8" (8mm) from the floor by visible brackets attached to the front fascia and back wall
 - 5. Fascia Panels: Supported by a structural aluminum framework and divider panel behind front line of toilet cubicles.
 - 6. Mounting Brackets and Fasteners: Mounting brackets and fasteners are not visible from compartment exterior.
 - 7. Privacy:
 - a. Minimal 3/16" gaps between vertical edges of door and framework.
 - b. Routed Door edges, together with aluminum framework prevents line-of-sight from exterior. Aluminum framework is finished to complement glass color.

- c. Aluminum framework provides privacy between compartments.

D. Hardware (Fittings):

1. Compliance: Door handle is operable with one hand, without tight grasping, pinching, or twisting of the wrist, and force to operate does not exceed five pounds.
2. Emergency Access: Latch allows door to be opened from outside compartment with emergency release key on the occupancy indicator.
3. Mounting: Divider fixed to back wall using concealed steel brackets.
4. Closing: Concealed inserts within the door allow attachment to stainless steel pivot blocks, suspended from aluminum headrail and located onto a bottom pivot bracket. Door falls closed by means of a hydraulic door closer concealed within the aluminum headrail. The door closes from the 90-degree open position in no more than 16 seconds. Surface applied hinges are not acceptable.
5. Door Hardware
 - a. Material: Manufacturer's standard precision engineered 303 grade brushed stainless steel.
 - b. Locking: Fixed through the door to the faceplate. Sacrificial hard nylon shear tip to the latch finger, which locates into the vertical closing post. Latches are hand-turned in UK and complete with emergency release facility.
 - 1). Components tested over a cycle of 300,000 operations.
 - c. Robe Hook: Manufacturer's standard.

E. Urinal Screens

1. Configuration: Wall-hung.
2. Height, Depth and Floor Clearance: Per architectural drawings.
3. Mounting Brackets: Continuous channel.
4. Finish: Match toilet cubicle finish.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where toilet cubicles are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. Install in accordance with approved shop drawings and manufacturer's instructions.
- B. Install work of this Section in a rigid and permanent manner, straight and plumb, with all horizontal lines level.

- C. Install panels and doors with height above finished floor as indicated on Drawings. Toilet compartment doors shall be centered on water closets, unless otherwise indicated.
- D. Maintain uniform clearance at vertical edges of door from top to bottom.
- E. Hardware and fastening devices shall be carefully and accurately installed. Door hardware shall be adjusted and shall be left in perfect working order.
- F. All evidence of drilling, cutting and fitting of floor, wall and ceiling finishes shall be concealed by completed toilet partition work.
- G. Finished surfaces of all work of this Section shall be thoroughly cleaned at completion of the installation and shall be left free from any and all imperfections.

END OF SECTION

SECTION 102800 - TOILET ACCESSORIES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the toilet accessories as shown on the drawings and/or specified herein.

1.3 RELATED SECTIONS

- A. Gypsum Drywall - Section 092900.
- B. Ceramic Tiling - Section 093013.

1.4 QUALITY ASSURANCE

- A. Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.
- B. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units. Accessories shall be installed at heights in compliance with prevailing Handicapped Code.
- C. Products: Unless otherwise noted, provide products of same manufacturer for each type of unit and for units exposed in same areas.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data, catalogue cuts and installation instructions for each toilet accessory.
- B. Setting Drawings: Provide setting drawings, templates, instructions, and directions for installation of anchorage devices in other work
- C. Submit schedule of accessories indicating quantity and location of each item.

1.6 PRODUCT HANDLING

- A. Deliver accessories to the site ready for use in the manufacturer's original and unopened containers and packaging, bearing labels as to type or material, manufacturer's name and brand name. Delivered materials shall be identical to approved samples.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 22 gauge minimum, unless otherwise indicated.
- B. Brass: ASTM B 19 flat products; ASTM B 16, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Galvanized Steel Sheet: ASTM A 653, G60.
- D. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.
- E. Mirrors: ASTM C 1503, mirror glazing quality, clear glass mirrors, nominal 1/4" thick.

2.2 FASTENING DEVICES

- A. Exposed Fasteners: Theft-proof type, chrome plated, or stainless steel; match finishes on which they are being used.
- B. Concealed Fasteners: Galvanized (ASTM A 123) or cadmium plated.
- C. No exposed fastening devices permitted on exposed frames.
- D. For metal stud drywall partitions, provide ten (10) gauge galvanized sheet concealed anchor plates for securing surface mounted accessories.

2.3 FABRICATION

- A. General: Stamped names or labels on exposed faces of toilet accessory units are not permitted. Unobtrusive labels on surfaces not exposed to view are acceptable. Where locks are required for a particular type of toilet accessory, provide same keying throughout project. Furnish two keys for each lock.
- B. Surface-Mounted Toilet Accessories, General: Fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage.
- C. Recessed Toilet Accessories, General: Fabricate units of all welded construction, without mitered corners. Hang doors of access panels with full-length stainless steel piano hinge. Provide anchorage which is fully concealed when unit is closed.

2.4 MANUFACTURERS

- A. Refer to Schedule on drawings.

2.5 ACCESSORY SCHEDULE

- A. Refer to Schedule on drawings.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where toilet accessories are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 PREPARATION

- A. Accessories which are to be partition mounted shall be closely coordinated with other trades, so that the necessary reinforcing is provided to receive the accessories.
- B. Furnish templates and setting drawings and anchor plates required for the proper installation of the accessories at gypsum drywall and masonry partitions. Coordinate the work to assure that base plates and anchoring frames are in the proper position to secure the accessories.
- C. Verify by measurements taken at the job site those dimensions affecting the work. Bring field dimensions which are at variance with those on the approved shop drawings to the attention of the Architect. Obtain decision regarding corrective measures before the start of fabrication of items affected.
- D. Cooperate in the coordination and scheduling of the work of this Section with the work of other Sections so as not to delay job progress.

3.3 INSTALLATION

- A. Install accessories at locations indicated on the drawings, using skilled mechanics, in a plumb, level and secure manner.
- B. Concealed anchor assemblies for gypsum drywall partitions shall be securely anchored to metal studs to accommodate accessories. Assemblies shall consist of plates and/or angles tack welded to studs.
- C. Secure accessories in place, at their designated locations by means of theft-proof concealed set screws, so as to render removing of the accessory with a screwdriver impossible.
- D. Unless otherwise indicated, accessories shall conform to heights from the finished floor as shown on the drawings. Where locations are not indicated, such locations shall be as directed by the Architect.
- E. Installed accessories shall operate quietly and smoothly for use intended. Doors and operating hardware shall function without binding or unnecessary friction. Dispenser type accessories shall be keyed alike. Prior to final acceptance, master key and one duplicate key shall be given to Owner's authorized agent.
- F. The Architect shall be the sole judge of workmanship. Workmanship shall be of the highest quality. Open joints, weld marks, poor connections, etc., will not be permitted. The Architect has the right to reject any accessory if he feels the workmanship is below the standards of this project.

- G. Grab bars shall be installed so that they can support a three hundred (300) lb. load for five minutes per ASTM F 446.

3.4 CLEANING AND PROTECTION

- A. Upon completion of the installation, clean accessories of dirt, paint and foreign matter.
- B. During the installation of accessories and until finally installed and accepted, protect accessories with gummed canvas or other means in order to maintain the accessories in acceptable condition.
- C. Replace and/or repair installed work which is damaged or defective to the Owner's satisfaction, at no additional cost.

END OF SECTION

SECTION 104416 - FIRE EXTINGUISHERS AND CABINETS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the fire extinguishers and cabinets as shown on the drawings and/or specified herein.

1.3 RELATED SECTIONS

- A. Gypsum drywall - Section 092900.
- B. Fire suppression systems - Division 22.
- C. Fire hose cabinets and valve cabinets - Division 22.

1.4 QUALITY ASSURANCE

- A. Provide portable fire extinguishers, cabinets and accessories by one manufacturer.
- B. UL-Listed Products: Provide new portable fire extinguishers which are UL-listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher indicated.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data and installation instructions for all portable fire extinguishers required. For fire extinguisher cabinets include roughing-in dimensions, and details showing mounting methods, relationships to surrounding construction, door hardware, cabinet type and materials, trim style and door construction, style and materials. Where color selections by Architect are required, include color charts showing full range of manufacturer's standard colors and designs available.
- B. Samples: Submit samples, 6" square, of each required finish. Prepare samples on metal of same gauge as metal to be used in the work. Where normal color variations are to be expected, include 2 or more units in each sample showing the limits of such variations.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide products of one of the following:
 - 1. J.L. Industries.
 - 2. Larsen's Mfg. Co.

3. Potter Roemer.

2.2 EXTINGUISHERS

- A. General: Provide fire extinguishers for each extinguisher cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard which comply with requirements of governing authorities.
- B. Abbreviations indicated below to identify extinguisher type related to UL classification and rating system and not necessarily to type and amount of extinguishing material contained in extinguisher.
- C. Multi-Purpose Dry Chemical Type: UL rated 2A-10B:C, 5 lb. nominal capacity, in enameled steel container, for Class A, Class B and Class C fires.

2.3 MOUNTING BRACKETS

- A. Provide manufacturer's standard bracket designed to prevent accidental dislodgment of extinguisher, of proper size for type and capacity of extinguisher specified, in manufacturer's standard enamel finish; color to match extinguisher.

2.4 CABINETS

- A. Type and Style: Fire extinguisher cabinets shall be metal, semi recessed, with plexiglass panel, sized to fit within the partition or wall depth. Provide fire rated cabinets within fire rated partitions.
- B. Color: Fire extinguisher cabinets shall be factory pre-finished with baked enamel in the colors selected by the Architect from the standard range of colors of the selected manufacturer.
- C. Design is based on "Model G-2409-5R" of Larsen's Mfg. Co. Other manufacturers noted herein may substitute their equivalent cabinet upon acceptance by the Architect.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where fire extinguishers and cabinets are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. Install items included in this Section in locations indicated and at heights to comply with applicable regulations of governing authorities.
 - 1. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer's instructions.
 - 2. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.

- B. Where exact location of cabinets and bracket-mounted fire extinguishers is not indicated, locate as directed by the Architect.

3.3 IDENTIFICATION

- A. Identify fire extinguisher in cabinet with lettering spelling "FIRE EXTINGUISHER" painted on door by silk-screen process or die cut lettering. Provide lettering on door as selected by Architect from manufacturer's standard letter sizes, styles, colors and layouts.
- B. Identify bracket-mounted extinguishers with red letter decals spelling 'FIRE EXTINGUISHER' applied to wall surface. Letter size, style and location as selected by the Architect.

3.4 SERVICE

- A. Determine the approximate completion date of the work and then inspect, charge, and tag the fire extinguishers at a date not more than 10 days before or not less than one day before actual completion date of the work.

END OF SECTION

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SECTION 111233 – PARKING GATES

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data: Manufacturer's descriptive data and product attributes.
- B. Closeout Submittals:
 - 1. Operation and Maintenance Data.

1.2 QUALITY ASSURANCE

- A. Installer Qualifications: Firm specializing in work of this Section, with minimum 2 years' experience.

1.3 WARRANTY

- A. Manufacturer's warranties against material and manufacturing defects:
 - 1. Cabinet: 10 years.
 - 2. Electrical and mechanical components: 2 years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Contract Documents are based on products by LiftMaster. www.LiftMaster.com or approved equal.

2.2 MANUFACTURED UNITS

- A. Parking Gates:
 - 1. Model: BG790.
 - 2. Operation: Gear reduced.
 - 3. Meet UL 325.
 - 4. Rated duty cycle: Maximum 6000 per day.
 - 5. Opening speed: 11 seconds.
 - 6. Barrier arm: Wishbone type, red and white, 24 feet long, counterweighted.
 - 7. Motor: 24 VDC, continuous duty, prewired, listed by Underwriters Laboratories.
 - 8. Controls: Sequenced access management system.
 - 9. Retro reflective photo eye,
 - 10. Security+ 2.0 radio receiver: Accept Security+ 2.0 rolling code technology remote controls and binary DIP switch remote controls. Owner to select one of the following: One button DIP remote control, Three button DIP remote control, Two button rolling code Security+ 2.0 remote control, or Four button rolling code Security+ 2.0 remote control.
 - 11. Low power loop detector.
 - 12. Primary/secondary configuration.
 - 13. Time-to-close.
 - 14. Heater.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

3.2 CLOSEOUT ACTIVITIES

- A. Test and adjust operators for proper operation.
- B. Demonstration: Demonstrate operation and programming of operators to Owner.

END OF SECTION 111233

SECTION 122113 HORIZONTAL LOUVER BLINDS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the horizontal louver blinds as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Horizontal louver blinds where scheduled.
 - 2. Field measurements of as-built conditions for windows scheduled to receive horizontal blinds.
 - 3. Accessories and hardware required for complete installation and operation.

1.3 QUALITY ASSURANCE

- A. Provide horizontal blinds which are complete assemblies produced by one manufacturer, including hardware, accessory items, mounting brackets, and fastenings.

1.4 SUBMITTALS

- A. Shop Drawings: submit floor layout, indicating location of blind unit, type and size of each blind unit, type and location of controls for blind unit. Submit shop drawings shown details of installation and relation to adjoining construction.
- B. Samples: Submit full size sample of blind for Architect's acceptance.
- C. Mock-Up
 - 1. Install blinds in one complete column bay for Architect's acceptance of installation details, workmanship and operation.
 - 2. Approved mock-up shall be used as standard for installation of work under this Section, and no further installation work shall proceed before Architect's acceptance of mock-up.

1.5 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Provide Horizontal wood venetian blinds 2" Wood Blinds made by SpringBlinds or approved equal.

2.2 MATERIALS AND COMPONENTS

A. Head Rail

1. Channel-shaped section with flanged edges at the top, fabricated from min. 0.025" thick tomized steel u-shaped. Head rail shall not sag or twist. Cross brace for extra rigidity.
2. Bottom of head rail shall be pierced with holes not exceeding 5/16" dia. to accommodate the lift cords and braided ladders.
3. Each end of head rail shall have an end brace of 0.042" thick sheet steel for additional rigidity. Each end brace shall have an adjustable tab to assure a secure and safe installation, to eliminate all lateral movement.
4. Head rail shall enclose all operation mechanism. Tilter and cradles shall be machine-clinched into head to assure perfect alignment.

B. Bottom Rail

1. Nominally 2" wide x 5/8" high finished to coordinate with slats.

C. Wood Slats

1. Slats shall be fabricated from North American hardwood finish as selected by Architect.
2. Slats shall be 2" nominal, 2" wide by 1/8" high.
3. The end clearance of each slat shall not exceed 1/4" from each side of the window opening.
4. Provide tape.

D. Braided Ladders

1. Shall be braided of polyester yarn, the vertical component of which shall be not less than .045" dia. nor greater than .066" dia. for max. strength and flexibility with minimum stretch.
2. The horizontal component, or rungs, shall consist of not less than 4 cable 1-1/16" long interbraided with the vertical components.
3. Braiding shall be accurate to assure proper control and adequate overlap of slats and so that slats are parallel to the horizontal in all positions. There shall be 15 equally spaced rungs per ft. of ladder.
4. A metal barb shall be securely and accurately machine-clinched at all 4 ends of each ladder to lock in holes and drum of bottom rail. Ladders shall be detachable.

5. Distance between end ladder and end of slats shall not exceed 6-1/2". Distance between braided ladders shall be equal and shall not exceed 22".
6. Braided ladders shall be dyed to match the color of the blinds.

E. Wand Tilter

1. The tilter shall be of enclosed construction. Its moving parts and power drive shall be made of compatible materials for smooth operation. It shall tilt the slats to preset limits which shall be from a fully open position (in a horizontal plane) and to an angle of 45 degrees (the outward edge of the slat shall be tilted down with the inward edge of the slat tilted up) and hold them at those positions or at any position within those limits so that any vibration or movement of ladders and slats will not drive the tilters and change the angle of the slats.
 - a. Standard spit control.
2. The tilter shall be .042" steel.
3. It shall be wand operated.
4. Wand shall be .38" diameter Birchwood.
5. The tilter shall be of sufficient length so that the bottom shall be 27-3/4" above the finished floor elevation and shall swivel for easy operation from any convenient position.
6. It shall be detachable by raising the locking sleeve.

F. Lift Cords

1. Cord shall be #2-1/2 size (.073" dia.) braided of high strength polyester fibers.
2. It shall have a rayon core or approved equal.
3. Cord shall be flexible with min. stretch characteristics and max. abrasion resistance.
4. Cord shall have min. breaking strength of 200 lbs.
5. Cord shall be of sufficient length and equalized to properly control the raising and lowering of the blind and shall have provisions so that slats always remain horizontal as blind is raised or lowered.
6. Lift cord branches shall be joined not less than 9" from the head.
7. Cord ends shall be securely anchored to the bottom rail.
8. It shall be possible to detach and attach cords. Cord ends shall be heat sealed.
9. Stringing arrangement shall be determined by the size and weight of the blind.
10. Lift cords shall match the color of blind slats.

G. Cord Lock for All Up or All Down Operation

1. The cord lock shall be .031" thick steel (nickel plated) securely riveted to head rail.
2. Its cord separator shall prevent cord twist in cord lock.

H. Tilt and Lift Controls

1. Pre-set tilter for slat angle control is required by Architect. (Provide approved mechanism to prevent 100% closure of slats.)
2. Tilt and lift controls shall be on right hand side, except when blind units are against columns, in which case they shall be on the opposite side.
3. Provide top lock device for raising control (up or down position only).

I. Drums and Cradles

1. All blinds shall have a cradle and drum for each ladder.
2. The cradle shall be .042" steel (nickel plated) and have 3 holes with rolled edges to guide the ladders and lift cords through the bottom of head rail. The cradle shall center the drum over the ladder openings. It shall provide bearing support for the tilt rod, thus preventing weight of blind from being transferred to tilter.
3. The drum shall be .031" steel and shall have 2 holes with rolled edges to anchor the bards of each of the 2 ladder ends. Drum shall be free of any protruding and unnecessary prongs. The length of the drum shall be a min. of 1-3/16" long to prevent the ladders from slipping off and binding between the cradle and drum.

J. Tilt Rod

1. There shall be a single length of "D" shaped tilt rod for each blind shaped to fit in drum openings and gear to synchronously transmit instant tilting response.
2. The tilt rod shall be solid steel (galvanized). Average cross sectional dimension shall be at least 1/4" to limit torsional deflection to 60 degrees in 30" length with an applied torque of one foot pound.

K. Installation of Brackets

1. Brackets shall be specially fabricated so that they can be attached directly to underside of blind pocket head member (without use of shims).
2. End installation brackets shall be 0.042" thick sheet steel; a pair of end installation brackets, with safety locking covers, shall support ends of the head rail securely. The locking cover shall be designed with a rolled hinge formation to engage a rectangular opening at the top of the bracket, preventing the cover from accidentally falling off. For maintenance, the cover shall permit removal of the blind from the brackets, without removal of the brackets.
3. Intermediate installation brackets shall be "U" shaped, 0.050" thick steel, and shall permit removal of blind from the brackets without removal of the brackets.

2.3 FABRICATION

A. Length of Blinds

1. Prior to fabrication, verify actual opening dimensions by accurate site measurements. Adjust blind dimensions for proper fit in all openings.
2. For standard window openings where there is no partition or a mullion, blinds shall be of such length that the edge of the blinds shall extend to within 1" of each other.
3. For non-standard window openings where there is a partition abutting the mullion, blinds shall be of such length that the edge of the blinds shall extend to within 1/4" of the partition.

B. Fabricate all components of blinds from non-corrosive, non-staining, non-fading materials which are completely compatible with each other, and which do not require lubrication during normal life expectancy. Blinds shall be free of sharp edges, burrs, or other defects which might be harmful to operation of blind or to persons or materials in contact with blinds.

C. Fabricate blind units to be completely contained in the blind pocket when in the full "up" position.

D. Tilt and Lift Control Location

1. Locate the Wand Tilter on the left-hand side and the Lift Cords on the right hand side of each blind except as follows:
 - a. Locate the Wand Tilter and Lift Cords on the clear side of window openings partially obscured by columns.
 - b. Locate the Wand Tilter and Lift Cords of blinds in corner windows on the side opposite the corner.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where the horizontal louver blinds are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. Install horizontal louver blinds using end installation brackets at ends of head rail and on intermediate installation bracket at center of head rail for rigid support of head rail and blind. Installation brackets shall be accurately located and securely fastened to blind pocket head member to permit easy entrance and removal of head rail, and to secure level head rail and slat position.
- B. The installation brackets shall be fabricated so that they can be directly secured to underside of blind pocket without use of shims.

- C. A minimum of two #6 self-tapping screws shall be used at each end bracket and each intermediary bracket for a safe and secure installation.

3.3 PROTECTION AND CLEANING

- A. Protect installed units to ensure their being in operating condition, without damage, blemishes, or indication of use at completion of project. Repair or replace damaged units as directed by Architect.

END OF SECTION

SECTION 122413 WINDOW SHADES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the window shades as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Manually-operated window shades.
 - 2. Field measurements of as-built conditions.
 - 3. Accessories and hardware required for complete installation and operation.

1.3 QUALITY ASSURANCE

- A. Provide assemblies which are complete assemblies produced by one manufacturer, including hardware, accessory items, mounting brackets, and fastenings.
- B. Provide materials in colors as selected by the Architect from manufacturer's standard colors.
- C. Window shades shall contain no vinyl.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include styles, material descriptions, construction details, dimensions of individual components and profiles, features, finishes, and operating instructions.
- B. Shop Drawings: Submit floor layout and elevations, indicating location of all window treatments, mechanism details, type and size of each unit, type and location of controls. Shop drawings must also show seaming of shade fabric. Submit shop drawings showing details of installation and relation to adjoining construction and conditions.
- C. Samples: Submit full size sample of each shade type for Architect's acceptance.
- D. Mock-Up
 - 1. Install each type of shade assembly on one complete column bay for Architect's acceptance of installation details, workmanship and operation.
 - 2. Approved mock-up shall be used as the standard for installation of work under this Section, and no further installation work shall proceed before Architect's acceptance of the mock-up.

1.5 WARRANTY

- A. Manufacturer's standard non-depreciating 25-year limited warranty covering all hardware, motors, motor control system and shade cloth.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Protect shades from damage, soiling and deterioration during transit, storage and handling to, until Owner's acceptance.

PART 2 PRODUCTS

2.1 MANUALLY OPERATED SHADES

- A. Provide manually operated shade system equal to "Sol-R-Shade" side by side with fascia bracket as manufactured by DFB Sales, Inc. or comparable product by the Mecho-Shade Corp. Sol-R-Veil Inc., Draper, or approved equal conforming to standards specified herein.
 - 1. Provide Swing-Arm Shade Hardware by Morgik, or approved equal.
- B. Operating System: Adjustment-free, controlled by a nickel-plated steel ball chain, 90 lb test. The clutch system shall be comprised of multi-banded steel springs that create the pressure necessary to keep the shade in its desired position. The clutch shall develop no more than 1/2 lb drag for easy fit.
- C. Mounting Brackets: Made from 16-gauge galvanized steel capable of being mounted in any position.
- D. Shade Mounting System: The tube shall be 1-1/2 inch in O.D. rolled steel 26 gauge.
- E. Hem/Hem Bar: The hem bar shall be extruded aluminum weighing 1/4 lb per linear foot and sit behind two thicknesses of shade cloth. The hem shall be triple thick with an electronically welded seam.
- F. Shade Bands: Construction of shade band includes the fabric, the hem weight, hem pocket, shade roller tube, and the attachment of the shade band to the roller tube. Sewn hems and open hem pockets are not acceptable.
 - 1. Hem Pockets and Hem Weights: Fabric hem pocket with RF welded seams (including welded ends) and concealed hem weights. Hem weights shall be of appropriate size and weight for shade band. Hem weight shall be continuous inside a sealed hem pocket. Hem pocket construction and hem weights shall be the same, for all shades within one room.
 - 2. Shade Band and Shade Roller Attachment:
 - a. Provide extruded aluminum shade roller tube of a diameter and wall thickness required to support shade fabric without deflection. Provide for positive mechanical engagement with drive/ brake mechanism.
 - b. Provide for positive mechanical attachment of shade band to roller tube; shade band shall be made removable/ replaceable with a snap-on/snap-off spline mounting, without having to remove shade roller from shade brackets.
 - c. Mounting spline shall not require use of adhesives, adhesive tapes, staples and/or rivets.

- G. Side Channels: Provide standard "blackout" side channels where black-out shades are required. Channels shall be extruded aluminum, with a black anodized finish, color selected by the Architect.

2.2 SHADE CLOTH

A. Shade Cloth:

1. DFB G80 Series (Blackout) - Linen. In Ballroom only.
2. DFB G10 Series (Solar) - Oatmeal for the Ballroom, Gunmetal for all other spaces.

2.3 FABRICATION

- A. The shade and the fabric shall hang flat without buckling or distortion. The edge, when trimmed, shall hang straight without curling or raveling. An unguided roller shade cloth shall roll true and straight, without tracking sideways more than +/- 1/8" in either direction due to warp distortion or weave design. Shades shall fill window openings from head to sill and jamb to jamb.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where window shades are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION: GENERAL

- A. Coordinate with the work of other trades to ensure proper and adequate provision in the work of those trades for interface with the work of this Section.
- B. Install the work of this Section in strict accordance with the indicated design and the installation recommendations of the manufacturer as approved by the Architect.
- C. Upon completion of the installation, put all components through at least ten (10) complete cycles of operation, adjusting as necessary to achieve optimum operation.

3.3 INSTALLATION OF MANUAL ROLLER SHADES

- A. Install roller shades level, plumb, square, and true according to manufacturer's written instructions and located so shade band is not closer than 2" to interior face of glass. Allow proper clearances for window operation hardware.
- B. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.
- C. Clean roller shade surfaces after installation, according to manufacturer's written instructions.

3.4 PROTECTION AND CLEANING

- A. Protect installed units to ensure proper operating condition, without damage or blemishes. Repair or replace damaged units as directed by the Architect.

END OF SECTION

SECTION 123661 - SOLID SURFACING COUNTERTOPS AND TRIM

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the solid surfacing countertops and trim (window sills) as shown on the drawings and/or specified herein.

1.3 RELATED SECTIONS

- A. Plumbing - Division 22.

1.4 REFERENCES

- A. ASTM D 256 - Standard Test Method for Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.
- B. ASTM D 570 - Standard Test Method for Water Absorption.
- C. ASTM D 638 - Standard Test Method for Tensile Properties.
- D. ASTM D 696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 degrees C. And 30 degrees C.
- E. ASTM D 785 - Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials.
- F. ASTM D 790 - Standard Test Methods for Flexural Properties of Un-reinforced and Reinforced Plastics and Electrical Insulating Materials.
- G. ASTM D 785 - Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials.
- H. ASTM G 22 - Standard Practice for Determining Resistance of Plastics to Bacteria.
- I. NEMA - National Electrical Manufacturers Association.
- J. NSF - National Sanitation Foundation.

1.5 SUBMITTALS

- A. Shop Drawings: Indicate dimensions, component sizes, fabrication details, attachment provisions and coordination requirements with adjacent work.
- B. Samples: Submit three (3) minimum 12" x 12" samples. Indicate full range of color and pattern variation. Samples must have outside corner/nosing/edging as shown on drawings and fully

finished as if it were the final end-product. Approved samples will be retained as a standard for work.

- C. Product Data: Indicate product description, fabrication information, and compliance with specified performance requirements.
- D. Maintenance Data: Submit manufacturer's care and maintenance data, including repair and cleaning instructions. Include in project closeout documents.

1.6 QUALITY ASSURANCE

- A. Applicable Standards: Standards of the following, as referenced herein:

- 1. American National Standards Institute (ANSI).
- 2. American Society for Testing and Materials (ASTM).

- B. Allowable Tolerances:

- 1. Variation in Component Size: + 1/8".
- 2. Location of Openings: + 1/8" from indicated location.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver no components to project site until areas are ready for installation. Store indoors.
- B. Handle materials to prevent damage to finished surfaces. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

1.8 WARRANTY

- A. Warranty: The manufacturer shall warrant to the Owner that the manufacturer will, at his option, repair or replace without charge, such product if it fails due to a manufacturing defect during the first 10 years after initial installation. This includes all labor charges needed to repair or replace the product covered hereunder.

PART 2 PRODUCTS

2.1 SOLID SURFACING MATERIAL COUNTERS AND SILLS

- A. Provide "Corian" counters as manufactured by E.I. Du Pont. Color and thickness as selected by Architect.
- B. Material: Cast, filled, acrylic; not coated, laminated or of composite construction, meeting ANSI Z124-1980, Type Six, and ISS FA-2.01 "Classification and Standards Publication of Solid Surfacing Material" as published by the International Solid Surface Fabricators Association (ISSFA).
- C. Counters shall be adhesively joined with no exposed seams, having edge details shown on drawings.
- D. Material shall conform to the published performance characteristics of ISSFA-2-01.

E. Performance Standards

<u>PROPERTY</u>	<u>REQUIREMENT</u>	<u>TEST PROCEDURE</u>
Tensile Strength	6000 psi	ASTM D 638-84
Tensile Modulus	1.5 x 10 ⁶ psi	ASTM D 638-84
Elongation	0.4% min.	ASTM D 638-84
Hardness	94	Rockwell "M" scale 56 Barcol Impressor
Gloss (60 degree)	5-20	ANSI Z124-1980 HUD
Color Stability	Bulletin UM-73-84 No change, 200	NEMA LD3 hours
Wear and Clean	Passes Bulletin UM-73-84	ANSI Z124-1980 HUD
Flammability		ASTM E 84-84a
Flame Spread		25
Smoke Developed		25
Class		I
Water Absorption	24 hrs. Long Term	ASTM D 570-81
Weight (% Max.)	0.09 0.80 (1/4")	
Izod Impact	0.28 ft.-lbs./in.	ASTM D 256-084
Impact Resistance	No fracture	NEMA LD3
Sheets	1/4" slab-36" drop	1/2 lb. ball
Boiling Water Surface		
Resistance	No visible change	NEMA LD3
Stain Resistance	Passes	ANSI Z124-1980
Bulletin	UM-73-84	HUD

2.2 ACCESSORY PRODUCTS

- A. Joint Adhesive: Manufacturer's standard two-part adhesive kit to create inconspicuous, non-porous joints.
- B. Adhesive: Manufacturer's standard neoprene-based adhesive meeting ANSI A146.1-1967 and UL listed.
- C. Sealant: Manufacturer's standard mildew-resistant, FDA/UL recognized silicone sealant in colors matching components.

2.3 FABRICATION

- A. Fabricator must be approved by the solid surfacing material manufacturer.
- B. Factory fabricate components exactly to sizes and shapes indicated, in accordance with approved shop drawings. Contractor shall verify in the field all installation conditions, prior to fabrication.
- C. Form joints between components using manufacturer's standard joint adhesive; without conspicuous joints. No joints or seams will be permitted other than those shown on the approved shop drawings, unless specifically approved by the Architect.

- D. Provide factory cutouts for plumbing fittings and accessories as indicated on the drawings.
- E. Cut and finish component edges with clean, sharp returns. Route radii and contours to template. Repair or reject defective and inaccurate work.
- F. Provide all custom sizes, shapes, curves, configurations, reveals, and edgings as called for and shown on the drawings in the dimension and thicknesses noted.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install components plumb and level, scribed to adjacent finishes, in accordance with approved shop drawings and product installation data.
- B. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. Keep components and hands clean when making joints.
- C. All surfaces, other than those surfaces that are the mounting/gluing surfaces, must be fully polished to match the finished face of all components. Unfinished surfaces will be rejected.
- D. Final finished surfaces must be fully and evenly polished with manufacturer's recommended finishing products. Unfinished surfaces will be rejected.
- E. Keep components and hands clean during installation. Remove adhesives, sealants and other stains. Keep clean until Date of Substantial Completion. Replace stained components.
- F. Protect surfaces from damage until Date of Substantial Completion. Repair work or replace damaged work that cannot be repaired to Architect's satisfaction.

END OF SECTION

SECTION 129300 - SITE FURNISHINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wood Bench
2. Backless Wood Bench
3. Picnic Table – Standard and ADA accessible
4. Wood Dining Table – Large
5. Café Wood Dining Table
6. Wood Dining Armchair
7. Wood Café Dining Armchair
8. Vehicular Control Gate
9. Bird Bath
10. Urn Planter
11. Pot Planters– multiple sizes

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color, material, and texture specified.
- C. Product Schedule: For site furnishings. Use the same designations indicated on Drawings.

1.3 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For site furnishings.

PART 2 - PRODUCTS

2.1 WOOD BENCH

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the following or approved equal.
- B. Windemere Bench manufactured by Country Casual Teak
 1. Contact information:
Country Casual Teak
7601 Rickenbacker Drive
Gaithersburg, Maryland 20879

Phone: 800-289-8325 / 301-926-9195

Fax: 301-926-9198

<https://www.countrycasualteak.com/>

C. Specification

1. Material: Grade A Teak (*Tectona grandis*); natural finish; formed with mortise and tenon joinery; Stainless steel fitting and hardware.
2. Arms: 2
3. Overall dimensions: 20 inches depth by 72 inches length by 35 inches height
4. Seat Height: 16 inches
5. Seat shape: Contoured
6. Weight: 62 pounds

D. Country Casual Bench Accessory-Anchor for benches set in bluestone, concrete, or chipseal.

1. Item #1005-4
2. Material: Brass
3. Dimensions: 1 inch width by 2.13-inch depth by 3-inch height.
4. In chipseal: use 12-inch-long brass spike per drawings.

2.2 BACKLESS WOOD BENCH

A. Basis-of-Design Product: Subject to compliance with requirements, provide the following or approved equal.

B. Foxhall Backless Bench manufactured by Country Casual Teak

1. Contact information:
Country Casual Teak
7601 Rickenbacker Drive
Gaithersburg, Maryland 20879
Phone: 800-289-8325 / 301-926-9195
Fax: 301-926-9198
<https://www.countrycasualteak.com/>

C. Specification

1. Material: Grade A Teak (*Tectona grandis*); natural finish; formed with mortise and tenon joinery; Stainless steel fitting and hardware.
2. Overall dimensions: 18 inches depth by 67 inches length by 17 inches height
3. Seat shape: Contoured
4. Weight: 30 pounds

D. Country Casual Bench Accessory-Anchor for benches set in bluestone, concrete, or chipseal.

1. Item #1005-4
2. Material: Brass
3. Dimensions: 1 inch width by 2.13-inch depth by 3 inch height.

2.3 PICNIC TABLE

- A. Octagonal Wooden Picnic Table in two versions, standard and accessible.
- B. Basis-of-Design Product: Subject to compliance with requirements, provide the following or approved equal.
- C. “The Hex” Standard & “The Hex” Wheelchair Accessible picnic tables by Bright Idea Shops
 - 1. Contact Information:
Bright Idea Shops
1500 Firestone Parkway
Suite D
Akron, OH 44301
Phone: 1-330-268-0168
URL: <https://www.brightideashops.com/products/hex-picnic-table>
- D. Specification
 - 1. Material: recycled HDPE plastic lumber.
 - 2. Seats: 6 adults
 - 3. Umbrella hole: Yes
 - 4. Color: Cedar/Green

2.4 LARGE WOOD DINING TABLE AND CAFÉ WOOD DINING TABLE

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the following or approved equal.
- B. Chelmsford Round Dining Table manufactured by Country Casual Teak
 - 1. Contact information:
Country Casual Teak
7601 Rickenbacker Drive
Gaithersburg, Maryland 20879
Phone: 800-289-8325 / 301-926-9195
Fax: 301-926-9198
<https://www.countrycasualteak.com/>
- C. Specification
 - 1. Material: Grade A Teak (*Tectona grandis*); natural finish; formed with mortise and tenon joinery; Stainless steel fitting and hardware.
 - 2. Height: 29.5 inches height; 28 inches clearance
 - 3. Tabletop:
 - a. Round
 - b. Dimensions:

- 1) Large Wood Dining Table: 51-inch diameter by 1-3/8 inches thick
 - 2) Café Wood Dining Table: 43 inch diameter by 1.3/8 inches thick
- c. Umbrella hole.
4. Weight:
- a. Large Wood Dining Table: 77 pounds
 - b. Café Wood Dining Table: 53 pounds

2.5 WOOD DINING ARMCHAIR

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the following or approved equal.
- B. Calypso Teak Stacking Armchair manufactured by Country Casual Teak
1. Contact information:
Country Casual Teak
7601 Rickenbacker Drive
Gaithersburg, Maryland 20879
Phone: 800-289-8325 / 301-926-9195
Fax: 301-926-9198
<https://www.countrycasualteak.com/>
- C. Specification
1. Material: Grade A Teak (*Tectona grandis*); natural finish; formed with mortise and tenon joinery; Stainless steel fitting and hardware.
 2. Overall dimensions: 34 inches height by 23 inches width by 21.5 inches depth
 3. Arm Height: 25 inches
 4. Seat Height: 17 inches
 5. Seat Dimensions: 16.5 inches width by 19 inches depth
 6. Weight: 18 pounds.

2.6 WOOD CAFÉ ARMCHAIR

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the following or approved equal.
- B. Windemere Teak Stacking Armchair manufactured by Country Casual Teak
1. Contact information:
Country Casual Teak
7601 Rickenbacker Drive
Gaithersburg, Maryland 20879
Phone: 800-289-8325 / 301-926-9195
Fax: 301-926-9198

<https://www.countrycasualteak.com/>

C. Specification

1. Material: Grade A Teak (*Tectona grandis*); natural finish; formed with mortise and tenon joinery; Stainless steel fitting and hardware.
2. Overall dimensions: 35 inches height by 27 inches width by 20 inches depth
3. Arm Height: 25 inches
4. Seat Height: 16 inches
5. Seat Dimensions: 21.75 inches width by 18.25 inches depth
6. Weight: 36 pounds.

2.7 VEHICULAR CONTROL GATE

- A. Basis-of-Design Product: Subject to compliance with requirements, provide DuraGate DGT-BS Super-Duty Steel Barrier Gate, which is available at a number of national distributors, or approved equal.
- B. Material specification:
1. 4-inch square tubular steel, 4mm thick.
 2. Hot Dip Galvanized Steel.
 3. Latch closure to receive padlock.
 4. Color: NYS Parks Green (Pantone: 350C; CMYK: 80/21/79/64)
- C. Arm to be cut to indicated size, capped and welded.
- D. Install as indicated on manufacturer's written instructions and drawings.

2.8 BIRD BATH

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the following or approved equal.
- B. Williamsburg Candlestand Birdbath by Campania – Product Code: B-199-NN
1. Contact information:
Campania Headquarters
2452 Quakertown Road, Suite 100
Pennsburg, PA 18073
Phone: 215.541.4330
Email: projects@campaniainternational.com
URL: <https://campaniatinternational.com>
- C. Specification
1. Material: Cast Stone.
 2. Color: to be selected by the Landscape Architect from the manufacturer's standard samples.

3. Overall dimensions: 21.5 inches diameter by 27.5 inches height
4. Inside top dimensions: 18.5 inches diameter by 2 inches height
5. Base Dimensions: 9.5 inches width
6. Weight: 90 pounds
7. UPC: 615973280825

2.9 URN

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the following or approved equal.
- B. Williamsburg Orangery Urn by Campania – Product Code: P-452-AL
 1. Contact information:
 Campania Headquarters
 2452 Quakertown Road, Suite 100
 Pennsburg, PA 18073
 Phone: 215.541.4330
 Email: projects@campaniainternational.com
 URL: <https://campaniatinternational.com>
- C. Specification
 1. Material: Cast Stone.
 2. Color: to be selected by the Landscape Architect from the manufacturer's standard samples.
 3. Drainage: One drainage centered drainage hole; approximately 1 inch
 4. Overall dimensions: 18 inches diameter by 22 inches height
 5. Inside top dimensions: 13 inches diameter by 16 inches height
 6. Inside bottom dimensions: 9 inches diameter
 7. Base Dimensions: 11.5 inches width
 8. Weight: 103 pounds
 9. UPC: 615976255677

2.10 PLANTER POTS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the following or approved equal.
- B. Carema Planters manufactured by Campania
 1. Contact information:
 Campania Headquarters
 2452 Quakertown Road, Suite 100
 Pennsburg, PA 18073
 Phone: 215.541.4330
 Email: projects@campaniainternational.com
 URL: <https://campaniatinternational.com>

C. Medium Planter - Product Code: P-421B-VE

1. Material: Cast Stone.
2. Color: to be selected by the Landscape Architect from the manufacturer's standard samples.
3. Drainage: One drainage centered drainage hole; approximately 1 inch to 1.5 inch
4. Overall dimensions: 22 inches diameter by 18 inches height
5. Inside top dimensions: 17.5 inches diameter by 17 inches height
6. Inside bottom dimensions: 11 inches diameter
7. Weight: 130 pounds
8. UPC: 615976189361

D. Large Planter

1. Material: Cast Stone.
2. Color: to be selected by the Landscape Architect from the manufacturer's standard samples.
3. Drainage: One drainage centered drainage hole; approximately 1 inch
4. Overall dimensions: 30 inches diameter by 23.5 inches height
5. Inside top dimensions: 25 inches diameter by 22 inches height
6. Inside bottom dimensions: 16 inches diameter
7. Weight: 233 pounds
8. UPC: 615976189248

2.11 MATERIALS

A. Steel and Iron: Free of surface blemishes and complying with the following:

1. Plates, Shapes, and Bars: ASTM A 36/A 36M.
2. Tubing: Cold-formed steel tubing complying with ASTM A 500/A 500M.

B. Stainless Steel: Free of surface blemishes and complying with the following:

1. Sheet, Strip, Plate, and Flat Bars: ASTM A 666.
2. Pipe: Schedule 40 steel pipe complying with ASTM A 312/A 312M.
3. Tubing: ASTM A 554.

C. Wood: Surfaced smooth on four sides with eased edges; kiln dried, free of knots, solid stock of species indicated.

1. Wood Species
 - a. Teak (*Tectona Grandis*): Clear Grade.
 - b. For Bollards only: Eastern Red Cedar (*Juniperus virginiana*): Clear Grad
2. Certified Wood: Fabricate site furnishings with components produced from wood obtained from forests certified by an FSC accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
3. Finish: Natural

- D. Anchors, Fasteners, Fittings, and Hardware: Stainless steel unless otherwise indicated.
- E. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M; recommended in writing by manufacturer, for exterior applications.
- F. Erosion-Resistant Anchoring Cement: Factory packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, an grouting compound, resistant to erosion from water exposure without needing protection by a sealer or waterproof coating, recommended in writing by manufacturer, for exterior applications.
- G. Galvanizing: Where indicated for steel and iron components, provide the following protective zinc coating applied to components after fabrication:
 - 1. Zinc-Coated Tubing: External, zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. (0.27 kg/sq. m) of zinc after welding, a chromate conversion coating, and a clear, polymer film. Internal, same as external or consisting of 81 percent zinc pigmented coating, not less than 0.3 mil (0.0076 mm) thick.
 - 2. Hot-Dip Galvanizing: According to ASTM A 123/A 123M, ASTM A 153/A 153M, or ASTM A 924/A 924M.

2.12 FABRICATION

- A. Metal Components: Form to required shapes and sizes with true, consistent curves, lines, and angles. Separate metals from dissimilar materials to prevent electrolytic action.
- B. Welded Connections: Weld connections continuously. Weld solid members with full-length, full-penetration welds and hollow members with full-circumference welds. At exposed connections, finish surfaces smooth and blended, so no roughness or unevenness shows after finishing and welded surface matches contours of adjoining surfaces.
- C. Exposed Surfaces: Polished, sanded, or otherwise finished; all surfaces smooth, free of burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.
- D. Factory Assembly: Assemble components in the factory to greatest extent possible to minimize field assembly. Clearly mark units for assembly in the field.

2.13 GENERAL FINISH REQUIREMENTS

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.14 STEEL AND GALVANIZED-STEEL FINISHES

- A. Baked-Enamel, Powder-Coat Finish: Manufacturer's standard, baked, polyester, powder-coat finish complying with finish manufacturer's written instructions for surface preparation, including pretreatment, application, baking, and minimum dry film thickness.

- B. PVC Finish: Manufacturer's standard, UV-light stabilized, mold-resistant, slip-resistant, matte-textured, dipped or sprayed-on, PVC plastisol finish, with flame retardant added; complying with coating manufacturer's written instructions for pretreatment, application, and minimum dry film thickness.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.
- B. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.
- C. Install site furnishings level, plumb, true, and securely anchored or positioned as indicated and at locations indicated on Drawings.
- D. Install using methods indicated on the drawings.
- E. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until the placement and finishing operation until concrete is cured.
- F. Posts Set into Voids in Concrete: Form or core-drill holes for installing posts in concrete to depth recommended in writing by manufacturer of site furnishings and 3/4 inch (19 mm) larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.
- G. Pipe Sleeves: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.

END OF SECTION 129300

SECTION 129301 – CUSTOM SITE FURNISHINGS – RAISED TIMBER PLANTER

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Custom built Wooden Planters
- B. Related Requirements:
 - 1. Section 312000 “Earth Moving: for excavation
 - 2. Section 329115 “Soil Preparation (Performance Specification)” for planter soil
 - 3. Section 329300 “Exterior Plants” for the installation of plant material, adjacent mulch.

1.2 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.

1.3 PREINSTALLATION MEETING

- A. Preinstallation Conference: Conduct conference at Project site with fabricator and installer present.

1.4 SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.
- C. Shop Drawings: Include layout, fabrication including joints and hardware as indicated, and installations shop drawings.
- D. Certificates
 - 1. Submit Wood Certificates of Inspection: Issued by lumber grading agency for exposed wood products not marked with grade stamp.
 - 2. Carpenter Qualifications and client contacts.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For site furnishings to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Qualifications for Carpenter: Engage an experienced Carpenter who has at least five years' experience with similar material and scope to that indicated for this Project with a successful construction record of in-service performance.

1.7 PRODUCT HANDLING

- A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar material.

1.8 PROJECT COORDINATION

- A. Coordinate installation with the installation of adjacent paving and other work.
- B. Coordinate with planting schedules.

PART 2 - PRODUCTS

2.1 WOOD, GENERAL

- A. Comply with DOC PS 20 and with grading rules of lumber grading agencies certified by ALSC's Board of Review as applicable. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by ALSC's Board of Review.
 - 1. Factory mark each item with grade stamp of grading agency.
 - 2. For items that are exposed to view in the completed Work omit grade stamp and provide doucertificates of grade compliance issued by grading agency.
 - 3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry wood products.
 - 4. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content:
 - 1. Dimension Lumber: 19 percent for more than 2-inch nominal (38-mm actual) thickness.)
- C. Planter Shape and Form: As indicated.
- D. Dimensions: As indicated
- E. Installation Method: As indicated on Drawings].
- F. Wood Finish: Unfinished.

2.2 MATERIALS

- A. Wood: Surfaced smooth on exposed surfaces with eased edges; kiln dried, free of knots, solid stock of species indicated.
- B. Wood Species Wood shall be Eastern Red Cedar (*Juniperus virginiana*) Select grade or better. No knots.
 - 1. Certified Wood: Fabricate site furnishings with components produced from wood obtained from forests certified by an FSC accredited certification body to comply with FSC STD-10-001, FSC Principles and Criteria for Forest Stewardship.”
- C. Anchors, Fasteners, Fittings, and Hardware: [
 - 1. Epoxy-Coated Reinforcing Bars: ASTM A775/A775M or ASTM A934/A934M; with ASTM A615/A615M, Grade 60 (Grade 420) smooth bars.
 - 2. Wood Screws: Stainless Steel 1/4 inches by 6 inches flat-head screws.
- D. Filter Fabric: Nonwoven Geotextile Filter Fabric: Polypropylene or polyester fabric, 3 oz./sq. yd. (101g/sq. m) minimum, composed of fibers formed into a stable network so that fibers retain their relative position. Fabric shall be inert to biological degradation and resist naturally encountered chemicals, alkalis, and acids.

2.3 FABRICATION

- A. Exposed Surfaces: Polished, sanded, or otherwise finished; all surfaces smooth, free of burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.

2.4 GENERAL FINISH REQUIREMENTS

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Comply with approved shop drawings.
- B. Before the installation of soil and plant material, fill finished planter with water and allow to percolate away.
- C. Protect the Work from adjacent construction.
- D. Install site furnishings level, plumb, true, and securely anchored at locations indicated on Drawings.

3.3 CLEAN UP AND REPAIR:

- A. Sand to smooth any splinters and rough edges to the satisfaction of the Director's Representative.
- B. Remove and replace any wood that has been damaged and cannot be repaired to "like new" condition in the opinion of the Director's Representative.
- C. Remove surplus soil and waste material including excess subsoil, unsuitable soil, wood, trash, and debris and legally dispose of them off Owner's property.

END OF SECTION 129301

SECTION 142423 - LIMITED USE / LIMITED APPLICATION ELEVATOR
(LU/LA)

PART 1 - GENERAL

1.1 SUMMARY

- A. These specifications are intended to cover the complete installation of one (1) holeless hydraulic (LU/LA) elevator designated "PE-1" at John Jay's Bedford House in Katonah, New York.

1.2 RELATED WORK

- A. A mainline fused disconnect switch shall be provided for the elevator. The mainline disconnect switch shall be located approximately 18" from the strike side of the machine room door and 52" above the floor. Provide an auxiliary contact for battery lowering device.
- B. 110 Volt circuit breaker panel with lockout capabilities. (Two (2) 20 Amp breakers)
- C. Machine room lighting with the light switch located directly adjacent to the strike jamb and one (1) 20 AMP G.F.I. outlet.
- D. A phone line circuit and internet connection in the machine room for emergency communications (24 hour emergency communications to an accessible location must be provided.).
- E. Provisions for natural ventilation directly from the machine room to the outside air and machine room air conditioning.
- F. A weather resistant type lighting fixture and G.F.I. outlet in the elevator pit. (The bulb must be protected by a grounded metal guard or lexan cover.) The switch shall be located adjacent to the strike side of the pit access door. Final locations of light, outlet and switch to be field coordinated in accordance with the elevator layout drawings.
- G. Enclosed and protected machine room. Minimum machine room height shall be 7' - 6".
- H. Access to machine room and/or machinery space to be a minimum of 3' - 0' wide by 6' - 8' high and shall be self-closing and locking. The lock shall be non-canceling and operate from within the room without the use of a key.
- I. Clear hoistway plumb from top to bottom with variations not to exceed one 1" at any point.
- J. Beveled guards are required for projections, recesses and setbacks in the hoistway that project more than 2" inside the general line of the hoistway on sides not used for loading or unloading.
- K. Hoistway protection in case of fire. (Two (2) hour rated enclosure or as required by local building codes.) Provide smoke exhaust ventilation from the top of the hoistway (3 sf net area).
- L. Supports for guide rail fastenings at each floor and/or intermediate supports. Provisions for bracket spacing should not exceed 7' - 0".

- M. Recesses, fireproofing and patching, as required, to accommodate hall button boxes, signal fixtures, hoistway entrance frames, etc.
- N. Pit reinforced to sustain vertical forces from guide rails, buffers and cylinders.
- O. Entrance walls for elevator are not to be constructed until door frames and sills are in place.
- P. Furnishing, installing and maintaining the required fire rating of elevator hoistway walls, including the penetration of fire wall by elevator fixture boxes.
- Q. The interface of the elevator wall with the hoistway entrance assembly shall be in strict compliance with the elevator supplier's/contractor supplier's requirements.
- R. Door frames are to be anchored to walls and properly grouted in place if installed in masonry walls to maintain fire ratings. The head jamb of the entrance frames shall not be used to support the weight of the wall over the frame.
- S. Support for sills the full width of hoistway, with 2 ½" minimum recesses including grouting after sills are set in place. Provide sill support angles.
- T. Refer to the drawings for additional related work items.

Refer to all Contract Documents for additional construction details. All Related Work must be coordinated by the Elevator Contractor.

1.3 QUALITY ASSURANCE

- A. The Elevator Contractor shall be an established firm of at least five (5) years in existence and have installed a minimum of five (5) elevators of similar size and application to this project. Submit proof of compliance of this requirement with the bid proposal.

1.4 STANDARDS

Except as modified by governing codes and by this Division, the work shall comply with provisions of the latest editions of the following, and in the event of conflict between these standards, the Architect's/Consultant's determination shall be final:

- A. ASME A17.1: The American Society of Mechanical Engineers - Safety Code for Elevators and Escalators including Supplements as adopted by the International Building Code, NYS Edition, latest adopted version and all local and county codes, as applicable.
- B. ANSI A117.1: American National Standards for Buildings and Facilities Providing Accessibility and Usability for Physically Handicapped People.
- C. ADA: Americans with Disabilities Act.
- D. International Building Code, NYS Edition, latest adopted version.

1.5 SUBMISSION, SAMPLES, CUTS AND DRAWINGS

- A. The Shop Drawings shall show material type and gauge, general dimensions, methods of attachment, location and size of reinforcements and openings, and a general arrangement of components. Approval thereof shall not relieve the Contractor of compliance with the specification, unless the attention of the Construction Manager is called to the non-complying features in writing. Shop drawings shall be reflective of all Contract Documents.

The Drawings submitted shall be as follows:

1. Elevator section showing overhead, pit and floor to floor dimensions. The drawing shall be scaled and shall show all structure and beam locations and details. Details shall include the height of the cab, door operator and crosshead, including details of rope shackle.
 2. Hoistway plan shall clearly show all typical dimensions to scale. In addition, plan shall identify all structural beam and divider beam locations and sizes; widths and depth of beams as they relate to the clear hoistway and hoistway walls; column pads in the pit and all column intrusions into the shaft. Provide large scale drawings and details of sill support condition and wall type.
 3. Provide machine room plan showing all typical dimensions and equipment layout. Show clearly all electrical disconnects or switchgear in the code compliant location and to scale.
 4. Provide drawings for the car enclosure showing cab plan, reflective ceiling, wall elevations, front returns and car station integration. Detail section through wall panel from canopy to platform. Detail section through suspended ceiling including attachment to canopy. Detail typical joints, reveals and panel edging, panel attachments, handrail fastening and pad button attachment to shell. Include all gauges of steel components. Provide thickness and type of materials used for wall panels and ceiling along with lamination details.
 5. Entrance details with the same specifics and quality of information provided for the cab details.
 6. Provide fixture drawings job specific in large scale. Identify all engraving including font, depth of engravings and infill color material. (No applied or recessed plates shall be acceptable except for Braille plates.) Provide gauges of all material used. Provide faceplate fastener and hinging method and type.
 7. Provide cut section through emergency light, position indicator, audio-visual interactive emergency communications system, buttons, Braille plates and service cabinet. (If requested)
- B. Sample submissions (as requested by the Architect) shall include:
1. Cab material and finishes.
- C. Thirty (30) days after completion of the work of the contract, the Contractor shall submit to the Construction Manager a copy of the Operation Maintenance and Parts Manual in Acrobat™ Portable Document Format (PDF); and copies of the complete set of as-builts in Acrobat™ Portable Document Format (PDF). These shall be reviewed, and if approved, shall become the property of the Owner.

1.6 TERMS / DEFINITIONS

The terms used herein are defined as follows:

- A. "Consultant" shall mean the firm of IROS Elevator Design Services, LLC.
- B. "Contractor" shall mean the person, firm or corporation named in the Contract Documents who will execute the Work. It shall include all his employees, subcontractors and suppliers.
- C. "Provide" shall mean to supply, install and connect up complete and ready for safe and regular operation the particular work referred to unless specifically indicated otherwise by the Architect.
- D. "Install" shall mean to erect, mount and connect complete with related accessories.
- E. "Furnish" or "Supply" shall mean to purchase, procure, acquire and deliver complete with related accessories.
- F. "Notice to Proceed" shall mean a written document from the Owner allowing the Contractor to commence only that portion of the work stated in the written document.
- G. "Work" shall mean the services, materials, labor and all other equipment required for complete and proper installation by the Contractor.
- H. "Best", "first-class" or similar terms as applied to materials, products and workmanship shall mean that, in the Architect's opinion, there are no superior qualities of materials or products on the market, and there is no better class of workmanship.
- I. "Concealed" shall mean in masonry or other construction, installed in furred spaces, within double partitions or hung ceilings, in trenches, in crawl spaces or in enclosures.
- J. "Exposed" shall mean not installed underground or "concealed" as defined above.

1.7 PERMITS

- A. The Contractor shall file all necessary plans and application with the local building department or other authorities having jurisdiction and obtain the required permits and approvals.
- B. The Contractor shall submit to the Construction Manager/General Contractor a copy of the permit application, elevator specs, permit and print of elevator drawings as submitted and approved by the authority having jurisdiction.
- C. Upon completion of the work, and prior to final payments, tests may be made by the Owner/Construction Manager of all materials and appliances installed hereunder. The Contractor shall furnish all labor and materials required for such tests.
 - 1. Should the tests show that any of the materials, appliances or workmanship are not first class or not in compliance with the Specifications, the Contractor, on written notice from the Owner/Construction Manager, shall remove same and promptly replace them with other materials and appliances in conformity with the Specifications.

- D. The Contractor shall perform all tests required by the authorities having jurisdiction in the presence of an authorized inspector to obtain Final Certificate of Inspection prior to turnover of the elevator to the Owner/Construction Manager.

1.8 PROTECTION

- A. Protect all items against dirt and damage. The Contractor shall be held fully responsible for all damage until final acceptance. Any equipment or property of the Owner damaged by this Contractor or his employee's, shall be restored to its original condition or replaced without cost to the Owner.

1.9 WARRANTY

- A. The elevator contractor shall guarantee the materials and workmanship of the apparatus furnished under these specifications and shall make good any defects which may develop within one (1) year from the date of final acceptance of the elevator.

1.10 MAINTENANCE

- A. Furnish full protective maintenance on the equipment described herein for a period of one (1) year from the date of final acceptance of the entire installation. The maintenance shall include systematic monthly examinations, adjustments and lubrication of all equipment. Also repair or replace any parts of equipment whenever this is required during the maintenance period and shall use only genuine standard parts produced by the manufacturer of the equipment installed.
- B. All work under the maintenance provisions shall be performed by competent personnel under the supervision and in the direct employ of the Contractor and 24-hour emergency call back service shall be available at all times and be included in the cost of the contract. Maximum response time for an entrapment shall not exceed 30 minutes and shall not exceed 2 hours for non-emergency shutdowns.
- C. Full protective maintenance requirements:
 - 1. Regularly and systematically examine, adjust, lubricate, clean and when conditions warrant repair or replace the following items and all other mechanical or electrical equipment.
 - 2. Hydraulic power unit and accessories: pump, motor, valves, operating valves, pulleys, drive belts, flexible hydraulic hose and fitting assemblies, oil tank, muffler, strainer, sound isolating coupling, plunger, packing gland, scavenger system, piping and other components.
 - 3. Controller, Selector and Dispatching Equipment: all components including all relays, solid state components, resistors, condensers, transformers, contacts, leads, dashpots, computer devices, selector switches, mechanical or electrical driving equipment, coils, magnet frames, contact switch assemblies, springs, solenoids, resistance grids, hoistway vanes, magnets and inductors.
 - 4. Hoistway door interlocks or locks and contacts, hoistway door hangers and tracks, bottom door gibs, cams, rollers, and auxiliary door closing devices for power operated doors. Chains, tracks, cams, interlocks, sheaves for vertical bi-folding doors.

5. Hoistway limit switches, slowdown switches, leveling switches and associated cams, vanes, and electronic components.
6. Guide shoes including rollers or replaceable gibs.
7. Automatic power operated door operators, door protective devices, car door hangers, tracks and car door contacts for both side slide and vertical bi-folding doors.
8. Traveling cables.
9. Elevator control wiring in hoistway and machine room.
10. Car safety mechanism and load weighing equipment.
11. Buffers.
12. Fixture contacts, push-buttons, key switches, locks, lamps and sockets of button stations (car and corridor), corridor lanterns, position indicators (car and corridor), direction indicators.
13. The guide rails shall be kept free of rust. Where roller guides are used, rails shall be kept dry and properly lubricated when sliding guides are used. Renew guide shoe rollers and gibs as required to insure smooth and satisfactory operation.
14. Examine, and make necessary adjustments or repair to the following accessory equipment including relamping of signal equipment: corridor lanterns, car and corridor position indicators, car stations, traffic director station, electric door operators, interlocks, door hangers, safety edge, and intercom systems.
15. Examine regularly and systematically all safety devices, and conduct an annual no load test, and each third year perform a full load, full speed test of safety mechanism and car buffers. The car balance shall be checked. All tests shall be performed in accordance with the provisions of the American National Standard, Safety Code for Elevators and Escalators (ANSI/ASME A1 7.A), current edition. Repair or replace conductor cables and hoistway and machine room elevator wiring.
16. Maintain all elevator equipment in hoistways, machine rooms, and pits in a clean, orderly condition, free of dirt, dust and debris.
17. Furnish lubricants compounded specifically for elevator usage.
18. Contractor shall not be required to make renewals or repairs necessitated by reason of negligence or misuse of the equipment or by reason of any other cause beyond the contractor's control except ordinary wear and tear unless the Contractor receives just compensation.
19. The Elevator Subcontractor shall not be responsible for the following items of elevator equipment: cab interior (including removable panels, door panels, car gates, plenum chambers, hung ceilings, light diffusers, light tubes and bulbs, handrails, mirrors and carpets): hoistway enclosure, hoistway door, frames and sills.

20. Emergency calls and minor repairs shall be answered at all hours of the day or night. Minor repairs shall mean those repairs which can be remedied by replacing a spare component stored on-site as further specified. Major repairs and normal preventative maintenance work shall be performed during normal business hours. Should overtime work be required for repairs other than minor repair work, the Owner will pay the actual amount of the premium portion of the wage. The Contractor shall pay the basic hourly rate.
 21. The Contractor shall check the group dispatching systems (if applicable) and make necessary tests to ensure that all circuits and time settings are properly adjusted, and that the system performs as designed and installed.
 22. Contractor shall perform the required mandated inspections and tests as required per local jurisdictions during the term of the included one (1) year maintenance contract.
- D. The Contractor shall keep the elevator maintained to operate at the original contract speed, keeping the original performance time, including acceleration and retardation as designed and installed by the manufacturer. The door operation shall be adjusted as required to maintain the original door opening and door closing times, within legal limits.
- E. The Owner reserves the right to make inspections and tests as and when deemed advisable. If it is found that the elevator and associated equipment are deficient either electrically or mechanically, the Contractor will be notified of these deficiencies in writing, and it shall be his responsibility to make the necessary corrections within 30 days after his receipt of such notice. In the event that the deficiencies have not been corrected within 30 days, the Owner may terminate the Contract and employ a Contractor to make the corrections at the original bidder's expense.
- F. Approximately six months prior to the end of the contract term, the Owner may make a thorough maintenance inspection of the elevator covered under the contract. At the conclusion of this inspection, the Owner may give the Contractor written notice of any deficiencies found. The Contractor shall be responsible for correction of these deficiencies within 30 days after receipt of such notice.
- G. The Owner reserves the right to accept or reject any or all alternates.

1.11 KEYS

- A. At the completion of all work, the Contractor shall furnish six (6) sets of keys for each key device installed.

1.12 ASSIGNMENTS

- A. The Elevator Contract is not assignable as a whole or in part without the written consent of the Owner.

1.13 FEES AND TAXES

- A. The base bid price shall include all permits, materials and equipment to be furnished on the site. In addition, the Contractor shall include all local, state and federal occupational and sales taxes, luxury taxes, excise taxes, federal and state old-age pensions and unemployment insurance contributions and any other similar taxes, fees and contributions in effect at the time of the signing of the contract. The Elevator Contractor is liable for the above mentioned taxes whether or not specifically mentioned in his bid or in the final contract document.

1.14 SPECIFICATIONS

- A. It is intended that the contract specification includes all labor and material to accomplish a complete installation in every respect, except those items specifically indicated to be done by other trades. However, bidders are cautioned to familiarize themselves with contractual conditions and to include all incidental work that might occur during the job. After the contract has been signed, there will be no extra charges allowed for any labor or material necessary to complete the work whether exactly described in these specifications herein or not, as long as such work, labor and material are required in order to obtain the desired effect and results with governing authority approval.
- B. Any discrepancies or ambiguities found in the specifications shall be reported to the Owner prior to bid for resolution.
- C. The Contractor shall provide all materials and equipment such that the completed installation will comply with all requirements of ASME A17.1 and the International Building Code, NYS Edition. If there is a discrepancy with the specifications, comply with the requirements of the Code.

1.15 MEASUREMENTS AND DRAWINGS

- A. Any drawings or measurements included with the bidding material shall be for the convenience of the bidders only. Complete responsibility for detailed dimensions lies with the Contractor. In the execution of the work on the job, the Contractor is to verify all dimensions with the actual conditions. Where the work of the elevator contractor is to join another trade, the shop drawings shall show the actual dimensions and the method of joining the work of the two trades.

PART 2 - PRODUCTS

2.1 DESCRIPTION OF LU/LA ELEVATOR:

A. ELEVATOR "PE-1"

1.	Quantity	One (1) Holeless Hydraulic Passenger LU/LA Elevator
2.	Capacity	1,400 Pounds
3.	Speed	30 FPM
4.	Travel	9' – 6" (to be Verified)
5.	Number of Landings	Two (2) @ Floors 1 and 2
6.	Number of Openings	Two (2) In-Line
7.	Operation	Two-Stop Collective
8.	Control	Microprocessor
9.	Clear Cab	48" Wide x 54" Deep
10.	Car Enclosure	\$30,000.00 Allowance
11.	Landing Doors	3' - 0" Wide x 6' - 8" High
12.	Door Operation	Two-Speed Side Opening
13.	Communication Equipment	Audio-Visual Interactive Emergency Communications System (Car and Machine Room)
14.	Power Supply	3 Phase Building Voltage Provide an Auxiliary Contact
15.	Code:	ASME A17.1 as adopted by the Latest Adopted Version of the International Building Code, NYS Edition

2.2 POWER UNIT

- A. The power unit shall be compactly and neatly designed with all components combined in a self-contained unit and with all adjustment features accessible. It shall include (at a minimum) a constant displacement rotary screw-type, pump motor designed for oil hydraulic elevator service, oil reservoir with an oil-level indicator, control valve, tank strainer in the suction line, integral pressure gauge and blowout proof muffler to reduce pulsations that may occur in the system.

2.3 POWER UNIT ISOLATION

- A. The power unit shall be mounted on vibration sound dampeners designed to isolate the unit from the building structure. Sound and vibration isolation pads shall be installed between the motor/pump assembly and the power unit structure and between the power unit and the machine room floor.

1. Provide neoprene vibration isolator pads.
2. All wiring connections to the power unit shall be flexible conduit, minimum 36" long, and installed slack.

2.4 VALVES

- A. A control valve including safety check valve, up direction valve with high pressure relief including up leveling and soft stop features, lowering valve including down leveling and manual leveling feature shall be mounted in a compact unit assembly. Control valves shall be solenoid operated and designed to open and close gradually to give smooth control. All valves shall be readily accessible for adjustment. The valve shall be equipped with a "no pressure sensing device" which will disable the piston from dropping if the car is blocked for any reason.

2.5 AUTOMATIC TWO-WAY LEVELING

- A. An automatic two-way leveling device shall be provided so that the car will approach landing stops at reduced speed from either direction of travel. The leveling device shall, within its zone, be entirely independent of the operating device and shall automatically stop and maintain the car within 1/4" level with the landing, regardless of change in load.

2.6 JACK UNIT (HYDRAULIC)

- A. Design and construct the jack unit in accordance with the applicable requirements of the ASME Code. It shall be of sufficient size to lift the gross load at the rated speed to the height specified and shall be factory tested to ensure adequate strength and freedom from leakage. No brittle material, such as gray cast iron, shall be used in the jack construction.
- B. Install jack unit plumb with heavy duty clamps to attached guide rail brackets and/or building structure and intervals not to exceed 7' - 0" or as recommended by the equipment supplier.

2.7 PACKING GLAND AND OIL RETRIEVAL SYSTEM

- A. A steel packing gland with phenolic guide bearing, wiper ring and packing especially designed for hydraulic elevator service shall be provided.

2.8 PIPING

- A. All hydraulic piping outside the power unit shall be seamless Schedule 40 Pipe with threaded connections.

2.9 CONTROLLER AND OPERATION

- A. A microprocessor-based controller shall be provided including necessary starting switches together with all relays, switches, solid state components and hardware required for operation, including door operation, as described herein. Operational control shall be by microprocessor.
- B. Hoistway Access Key Switch operation at the terminal landings are to gain access to the top of the car from the top landing and to gain access to the pit from the bottom landing.

2.10 REDUCED CURRENT STARTING

- A. Reduced current starting shall be furnished which shall limit both the initial starting current and peak current drawn by the motor.

2.11 LOW OIL CONTROL

- A. In the event of a low oil condition, a low oil control feature shall be provided designed to automatically cause an up traveling car to descend to the lowest terminal landing to permit passengers to egress. The doors shall then automatically close and all control buttons, except the "Door Open" button in the car operating panel, shall be made ineffective. The oil reservoir should be refilled before the elevator is returned to service.

2.12 AUTOMATIC POWER FAILURE SAFETY SYSTEM

- A. Provide a battery powered Auto-Lowering System.

2.13 MAIN GUIDE RAILS

- A. Provide machine standard, "T" section guide rails with tongue and grooved joints for the car's main rails. Use not less than 3/4" thick steel machined fishplates to form rail joints. Connect rails to fishplates with four (4) bolts. Brackets shall be used to support the rails from the hoistway framing, pre-cast concrete planks and/or inserts. Rails to be attached to the brackets with clips. Provide rail backing where no intermediate support framing is shown on the drawing. All guide rails shall be erected plumb and parallel to a maximum deviation of 1/8" (plus or minus 1/16").
 - 1. Inserts (if used) shall be furnished by Elevator Contractor and installed by others. The Elevator Contractor shall provide the Construction Manager with clear insert location drawings (shaft plan and section).

2.14 AUXILIARY RAILS AND BRACKETS

- A. Provide manufacturers recommended "T" section rails and fishplates of adequate size for guiding the rams header sheave. Brackets shall be used to support the rails from the hoistway framing and/or inserts. Rails shall be attached at the brackets with clips. All rails to be erected plumb to and in complete alignment to the main rails and cylinder.

2.15 CAR SAFETY (If Applicable)

- A. A car safety shall be provided for the hydraulic elevator. The safety shall be of the type which can be released only by moving the car in the "up" direction. To return a car to normal operation after a safety set, the car shall be moved hydraulically in the "up" direction. For repairs of an obvious or suspected malfunction, the car may be raised by other means capable of holding the entire car weight. Prior to releasing the other means, the car shall be run hydraulically in the "up" position.

2.16 CAR SLING

- A. The car frame shall be constructed of steel designed specifically for hydraulic platform applications.

2.17 PLATFORM

- A. The platform shall be steel construction mounted on manufacturer's standard vibration isolation pads. The sub-flooring is to be constructed of plywood (finished flooring is by others). The underside of the platform shall be properly fireproofed with 26 gauge galvanized steel metal.
- B. Provide an extruded aluminum car sill.
- C. Recess the platform as required for the finish flooring.

2.18 CAR GUIDE SHOES

- A. The car frame shall have manufacturer's standard guide shoes attached at the upper and lower portion of the stiles. These roller-guide shoes shall be adjustable, spring loaded type with adjustable mounting base, rigidly bolted to the top and bottom of each side of the car frame. Shoes shall be designed for cantilevered application.

2.19 HOISTWAY ENTRANCES

- A. Hoistway entrances of the hollow metal horizontal sliding, single speed type, shall be provided at each hoistway opening. Each entrance shall include 14 gauge steel unit frames (corners to be welded and ground smooth), flush design 16 gauge door panels, sight guards, extruded aluminum sills, strut angles, headers, hanger covers, fascia plates, toe guards, dust covers and necessary hardware.
- B. Material and Finish shall be as follows:
 - 1. Frames: Stainless Steel No. 4 Finish
 - 2. Door Panels: Stainless Steel No. 4 Finish
 - 3. Sight Guards: Stainless Steel No. 4 Finish
- C. Fascias, hanger covers, toe guards and dust covers shall be a minimum of 16 gauge and have the manufacturer's standard enamel or galvanized finish. Structural members shall have prime coat finish.
 - 1. Header, Struts and strut extensions shall be a minimum of 10 gauge formed steel.
- D. Sills, struts, headers, hanger covers and unit frames shall be erected prior to the erection of rough walls and set in proper relation to the car guide rails. Door panels shall be installed after the walls are finished.
- E. Provide keyholes for each landing door.
- F. Provide sill support angles.
- G. Provide blind fascia as required throughout.

2.20 MASTER DOOR OPERATOR

- A. A Master Door Operator with a direct current motor shall be provided to open and close the car and hoistway doors simultaneously, at a maximum speed of not less than 1 ½ feet per second. Door movement shall be cushioned or checked at both limits of travel. An electro-mechanical interlock shall be provided on each hoistway door to prevent the operation of the elevator unless all doors are closed and locked. An electric contact shall be provided on the car door to prevent the operation of the elevator unless the car door is closed.
- B. The door operator shall be arranged so that, in case of interruption or failure of electric power from any cause, the doors can be readily operated by hand from within the car. Emergency devices and keys for operating the doors from the landing shall be provided unless otherwise specified by local codes.
- C. The doors shall open automatically when the car is leveling at the respective landings and shall close after a predetermined time interval or immediately upon pressing a car button. A "Door Open" button shall be provided in the car, the momentary pressing of which shall reopen the doors and reset the time.

2.21 DOOR EDGE PROTECTIVE DEVICE

- A. Provide an infra-red curtain type reopening device with proximity detector that will stop and reopen the car door and hoistway door automatically if the door becomes obstructed by an object or person. The device shall be capable of completing these operations without required contact for an obstruction passing through the opening. The device shall be a non-reflective through beam system with a minimum of forty sensors per edge. It shall have a maximum sensor spacing of 1.8" or less. It shall incorporate a microprocessor controlled fail-safe system. It shall be capable of self adjustment to compensate for varying environmental conditions.

2.22 DOOR HANGERS AND TRACKS

- A. Hangers and tracks shall be provided at the car and hoistway entrance. Tracks shall be of bar steel with the working surface contoured to match the sheaves. The hangers shall be designed for power operation and have provisions for vertical and lateral adjustment. Hangers shall be designed for two point suspension of the door panel.
- B. Hanger sheaves shall be polyurethane with pre-lubricated and sealed-for-life bearings. Car door hangers shall have 3 ¼" diameter sheaves. Hoistway door hangers shall have 3 ¼" diameter sheaves.

2.23 INSPECTOR'S OPERATING STATION

- A. An inspector's operating station shall be provided on top of the elevator car consisting of "Up" and "Down" constant pressure buttons, incandescent light with guard, 110 Volt G.F.I. work outlet and an emergency stop switch.

2.24 PIT EMERGENCY STOP SWITCH

- A. An emergency stop switch shall be provided in the elevator pit, designed to cut off current supply to motor and "down" direction valves and bring the car to rest independent of the regular operating devices.
 - 1. Locate the pit stop switch in accordance with code.

2.25 ALARM BELL

- A. An electric signal bell shall be provided in or adjacent to the elevator hoistway as directed. This bell shall be connected to the alarm button in the car operating panel.

2.26 CAR OPERATING PANEL

- A. A car operating panel shall be furnished in the car containing illuminating buttons for each landing, flush-mounted Braille tags, emergency car light with flush lens, door open and close buttons, audio-visual interactive emergency communications device, emergency stop switch, alarm button and key switches for light, fan and independent service.
 - 1. The audio-visual interactive emergency communications device shall be mounted to the backplate and concealed behind the car station.
 - 2. Provide an L.E.D. position indicator.
 - 3. Provide car stations with all signage and components to comply with Code.

2.27 ILLUMINATED CALL AND CAR BUTTON

- A. Call registration lights shall be provided in each push-button unit. When a button is pressed, it shall illuminate, signaling to the waiting passenger that the call has been registered. Each button shall remain illuminated until the call has been answered.
 - 1. Provide satin stainless steel buttons throughout. Button finish shall match the finish of surrounding cab panel.

2.28 CAR LANTERNS

- A. Lanterns with one stroke up, two strokes down gongs shall be provided.
- B. As soon as the car has reached a predetermined distance from a landing and is set to stop at that landing, the corresponding lantern shall be illuminated and the gong shall sound whether the hall button has been pressed or not and the lantern shall remain illuminated until the car has left that landing. All visual and audible signal timing shall be in accordance with A.D.A. requirements.

2.29 HALL CALL STATIONS

- A. Provide unit with No. 4 stainless steel faceplates with beveled edges and tamper proof fasteners.

2.30 ELECTRIC WIRING

- A. It shall be the responsibility of the Elevator Contractor to furnish and install complete, necessary, insulated wiring to connect all parts of the equipment. Wiring, conduit, fittings and installation shall be in accordance with the requirements of the National Electric Code.
- B. Insulated wiring shall have a flame retarding and moisture resisting outer cover and shall run in concealed galvanized metal conduit, metallic tubing or wire ducts.
 - 1. Flexible metal conduit shall be permitted for short runs only.
- C. Traveling cables between car and hoistway shall have a flame retarding and moisture resisting outer cover. They shall be flexible and suitably suspended to relieve strains in the individual conductors. The traveling cable shall also include:
 - 1. A minimum of 10% spare conductors, (ends to be left accessible to facilitate connections at a later date).
 - 2. Wiring as required for the audio-visual interactive emergency communications device, and firemen's communication (as required by Code).
 - 3. A video co-axial cable type RG 59U, (leave adequate slack in the machine room and top of car to facilitate final hookup).
 - 4. Six (6) pairs of 18 gauge shielded cables, (terminating on terminal strips in the controller and in the car operating station).
 - 5. Provide internet cabling.

2.31 TERMINAL LIMIT SWITCHES

- A. Terminal limit switches shall be provided in the hoistway, designed to automatically stop the car at the terminal landings, within the designated top and bottom overtravels.
 - 1. The switches shall be rail mounted with rubber (or similar) rollers which are engaged by a car mounted cam. The beveled section of the cam shall be designed for smooth, quiet engagement of the switches.

2.32 CAB

- A. Elevator Cab (Allowance Basis = \$30,000)
 - 1. Include in the bid an allowance to cover the supply of elevator cab delivered to the job site of \$30,000.00. This allowance is to be free of any handling charges, applicable sales and/or use taxes (which shall be included in the Elevator Contractor's base bid.)

2. The Owner reserves the right at his sole option, to call for stipulated sum bids from the Elevator Contractor and Others for the work covered by the cash allowance. If the Elevator Contractor is unsuccessful in his bid for this work, he shall be required to accept the successful bidder as his sub-contractor. If the successful bidder's price for the work covered by the cash allowance differs from the cash allowance, the base contract price for the complete elevator installation shall be correspondingly increased or decreased as the case may be, but no adjustment shall be made for coordination, overhead, profit or incidental costs by the Elevator Contractor in his base contract price in connection with the work covered by such cash allowances.
 3. The cab shall include the mounting strips, stay plates, door panels, pad hooks, flooring, base, handrail, wainscot, soffit and frieze, ceiling, certificate frame, signage and engraving, cut-outs to accommodate the elevator equipment, lighting, ventilation and coordination with the Elevator Contractor and his suppliers.
 4. The cab allowance does not include the following items which are included in the base bid: car header, door hangers, tracks, operators, interlocks, exit contact locks, platform, position indicators, operating panels, sub-plates and components, card reader requirements, sills, flooring and protection pads for the elevator.
 5. Provide cartons and crates sufficiently strong to prevent any damage to cab components when shipped by common carrier to the job site.
 6. Deliver all material at the job site by truck transport for unloading by the Elevator Contractor. It is understood that the storage of the cab on site shall be at the entire responsibility of the Elevator Contractor.
- B. Design the system to accommodate a minimum of 1000 lbs. of interior finishes which include the suspended ceiling assembly, interior wall panels, handrails, flooring and fixtures. It does not include shell, canopy, doors, transom, return panels, all top of car accessories, door operator, etc.
- C. Cab Requirements
1. Shell - 14 gauge steel for walls and 12 gauge steel for canopy. Individual panels shall not exceed 18" in width and shall be reinforced to provide for a flat, rigid surface. Apply spray on sound deadening on rear of shell. Sound deadening material shall be non-combustible and applied in accordance with manufacturer's recommendation. Provide a minimum 1/8" consistent thickness on all surfaces. Provide welded re-enforcement grounds (minimum 1/4" thick with weld nut) on the rear of the shell for handrail mounting. Provide all cutouts in the shell as required for ventilation and fixture installation.
 2. Interior Panels - TBD

3. Front Return Panels -
Provide 14 gauge full front swing return panels. The swing return panels shall have a concealed continuous hinge and a substantial locking system. Provide no more than a 1/4" clearance between the swing return panel and the finish floor and a 1/16" between the swing return panel and transom.
 - a. The swing return panels and hinging system shall be suitably re-enforced to prevent appreciable or permanent sagging or deflection when opened for maintenance.
4. Transom -
14 gauge suitably re-enforced. Apply sound deadening to the back of the transom as specified above.
5. Doors -
16 gauge with full height rubber astegral at the leading edge of each door panel. Provide the same construction as for the hoistway doors.
6. Sills -
Extruded aluminum
7. Ceiling -
TBD
8. Handrails -
Provide a handrail along the back wall. Design the handrail to withstand a minimum 500 lb. vertical point load at the center between handrail supports. Refer to the Architectural drawings.
 - a. Handrail mounting equipment shall be solid metal and spaced no more than 24" apart.
9. Exhaust Fan -
(Included in Base Bid)
Two-speed Nylube fan, mounted on vibration isolation pads.
10. Protection Pads -
(Included in Base Bid)
Provide one (1) set of protection pads (cost is included in the base bid). Provide heavy-duty vinyl impregnated nylon with 1/4" thick padding. Pads are to be fire retardant and treated to be self-extinguishing. Include a metal stiffening bar on top of pads and include retaining clips to hold the pads in place. Provide pads in a color as selected by the Architect.
11. Pad Buttons -
Provide extended type pad buttons (Included in Base Bid) bolted through the shell. Provide weld nuts on rear of shell to accept the pad buttons.
12. Base -
TBD
13. Concealed Vent Slots -
Design the cab interior to provide for ventilation openings above the base behind the wall panels. Refer to the Architectural drawings.

14. Flooring -	by Others. Provide recess to accommodate finish floor thickness.
15. Reveals, Frieze Other Exposed Areas	All exposed reveals, friezes, etc. shall be metal in a material and finish as approved by the Architect.
16. Engraving -	No applied plates will be accepted. No manufacturer's logos shall be visible.

2.33 PERFORMANCE

- A. Speed to be within 5% of rated speed in both directions of travel and under any load.
- B. Leveling to be within 1/4" of the Hoistway Sill level.

2.34 HANDICAPPED REQUIREMENTS AND COMMUNICATIONS

- A. Locate a door reopening device at 5" and 29" above the finish floor, the alarm button and emergency stop switch at 35" and the floor and control button not more than 54".
- B. Provide raised markings in the panel to the left of the floor and control buttons. Letters and numbers shall be a minimum of 5/8" and raised .03" and shall be in contrasting color to the call buttons. Plates, if used, shall be stud mounted and recessed flush with the car station.
- C. The centerline of the hall push-button station shall be 42" above the floor. The hall lanterns or cab lantern shall sound once for the "up" direction and twice for the "down" direction.
- D. Provide floor designations at each entrance on both sides of jamb at a height of 60" above the floor. Designations shall be 2" high, raised .03" and shall be as selected by the Architect.
- E. Provide an audible signal to tell passenger that the car is stopping or passing a floor served by the elevator.
- F. Provide audio-visual interactive emergency communications device in the elevator cab and machine room. System shall allow for communications between the machine room and cab in accordance with Code. The communication system shall be in full compliance with Code.

2.35 MATERIALS

- A. Sheet Steel for Exposed Work: Stretcher-leveled, cold rolled, commercial-quality carbon steel, complying with ASTM A366, matte finish.
- B. Sheet Steel for Unexposed Work: Hot-rolled, commercial quality carbon steel, pickled and oiled, complying with ASTM A569.
- C. Structural Steel Shapes and Plates: ASTM A36 and AISI 1018.

- D. Stainless Steel: Type 300 Series complying with ASTM A167, with standard tempers and hardness required for fabrication, strength and durability. Supply with mechanical finish on fabricated work in the location shown or specified with texture and reflectivity required (Federal and NAAMM nomenclature). Protect with adhesive plastic film or paper covering. All finishes specified as "satin" to be Manufacturer's standard directional polish that complies with commercial No. 4 requirements. All finishes specified as "mirror" to be Manufacturer's standard mirror polish that complies with commercial No. 8 requirements.
- E. Bronze: Cold finished muntz metal type UNS C28000-HO2 complying with ASTM B36/B36M. Supply with mechanical finish on fabricated work in the location shown or specified with texture and reflectivity required (Federal and NAAMM nomenclature). Protect with adhesive plastic film or paper covering. All finishes specified as "satin" to be Manufacturer's standard directional polish that complies with commercial No. 4 requirements. All finishes specified as "mirror" to be Manufacturer's standard mirror polish that complies with commercial No. 8 requirements.
- F. Aluminum: Extrusions per ASTM B221; sheet and plate per ASTM B209.
- G. Plastic Laminate: ASTM E84 Class A and NEMA LD3, 0.050" (1.3 mm) up to 1/16" (1.6 mm) nominal thickness. Exposed surfaces to have color selected by Architect from Manufacturer's standard selection.
- H. Fire Retardant Treated Particle Board Panels: Minimum 3/4" (13mm) thick backup for plastic laminate veneered panels provided with suitable anti-warp backing; to meet ASTM E84 Class "A" rating with flame-spread rating of 25 or less.
- I. Paint: Unexposed Steel and/or Iron: Clean metal of oil, grease, scale and other foreign matter and paint one shop coat of Manufacturer's standard rust-resistant primer. Primer shall be of a low V.O.C. water-based type. Galvanized metal need not be painted.
- J. Exposed Steel: Clean exposed metal of oil, grease, scale and other foreign matter. Eliminate any dents, scratches, or other defects that would affect the final finish. For material delivered with primer coat only, apply two coats of manufacturer's standard baked enamel primer. For material delivered with a finished coat, apply an additional two coats of manufacturer's standard baked enamel of a color selected by the Architect from the manufacturer's standard color selection.

END OF SECTION 142423

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SECTION 14 42 13 – INCLINED PLATFORM WHEELCHAIR LIFTS

PART 1 GENERAL

1.1 SUMMARY

- A. These specifications are intended to cover the complete installation of two (2) outdoor inclined platform wheelchair lift designated "WC-1" at John Jay's Bedford House and "WC-2" at the Laundry Building in Katonah, New York.
- B. Refer to Architectural Drawings for rise and details.

1.2 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete: Anchor placement in concrete.
- B. Section 04800 - Masonry Assemblies: Anchor placement in masonry.
- C. Section 06100 - Rough Carpentry: Blocking in framed construction for lift attachment.
- D. Section 09260 - Gypsum Board Assemblies: Stair walls.
- E. Section 13650 - Fire Alarm System: Building Fire Alarm Integration system to connect the lift control system with the building fire alarm system.
- F. Division 16 - Electrical: Electrical power service and wiring connections.
- G. Division 16 - Electrical: Concealed low voltage control wiring.
- H. Division 16 - Electrical: Intercom and wiring.

1.3 REFERENCES

- A. ASME A17.5 - Elevator and Escalator Electrical Equipment.
- B. ASME A 18.1a 2001 - Safety Standard for Platform Lifts and Stairway Chairlifts.
- C. CSA 844.1 - Elevator and Escalator Electrical Equipment.
- D. CSA 8355 - Lifts for Persons with Physical Disabilities.
- E. ICC/ANSI A 117.1 - Accessible and Usable Buildings and Facilities.
- F. NFPA 70 - National Electric Code.
- G. CSA - National Electric Code.
- H. International Building Code, NYS Edition, latest adopted version.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Submit manufacturer's installation instructions, including preparation, storage and handling requirements.
 - 2. Include complete description of performance and operating characteristics.
- C. Shop Drawings:
 - 1. Show typical details of assembly, erection and anchorage.
 - 2. Include wiring diagrams for power, control and signal systems.
 - 3. Show complete layout and location of equipment, including required clearances.
- D. Selection Samples: For each finished product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finished product specified, two samples, representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Firm with minimum 10 years documented experience in manufacturing of inclined wheelchair platform lifts of installations of type specified.
- B. Installer Qualifications: Firm licensed to install equipment of this scope, with evidence of experience with specified equipment. Installer shall maintain an adequate stock of replacement parts and have qualified people available to ensure timely maintenance and callback service at the project site.

1.6 REGULATORY REQUIREMENTS

- A. Provide platform lifts in compliance with:
 - 1. ASME A18.1 - Safety Standard for Platform Lifts and Stairway Chairlifts.
 - 2. ASME A17.5 - Elevator and Escalator Electrical Equipment.
 - 3. NFPA 70 - National Electric Code.
- B. Provide platform lifts in compliance with:
 - 1. CSA 8355 - Lifts for Persons with Physical Disabilities.

2. CSA 844.1/ASME A17.5 - Elevator and Escalator Electrical Equipment.

3. CSA - National Electric Code.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store components off the ground in a dry covered area, protected from adverse weather conditions.

1.8 PROJECT CONDITIONS

- A. Do not use wheelchair lifts for hoisting materials or personnel during construction period.

1.9 WARRANTY

- A. Warranty: Provide a two-year limited warranty covering replacement of defect.
- B. Extended Warranty: Provide an additional five-year limited warranty covering replacement of defective parts and excluding labor for a total of seven years. Preventive maintenance agreement required.

1.10 MAINTENANCE SERVICE

- A. Furnish service and maintenance for elevator system and components for two (2) years from Date of Substantial Completion.
- B. Include systematic examination, adjustment and lubrication of elevator equipment. Repair or replace parts whenever required. Use parts produced by manufacturer of original equipment. Replace wire ropes when necessary to maintain required factor of safety.
- C. Provide emergency call back service for this maintenance period.
- D. Perform maintenance work using competent and qualified personnel approved by elevator manufacturer or original installer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. Garaventa Lift
 - 2. Savaria Elevator
- B. Requests for substitutions will be considered.

2.2 STAIR LIFTS FOR STRAIGHT STAIRWAYS

- A. Stair-Lifts to serve one flight of straight stairs with two landings and two stops. Lifts consists of an extruded aluminum guide rail, a folding platform that is moved along the guide rail by an integrated rack and pinion drive system, overspeed safety system and call stations at each landing. Conform to the following design requirements:
1. Application: Outdoor
 2. Platform Load Rating: 550 lbs.
 3. Travel Speed: 13 fpm traveling up and 16 fpm traveling down.
 4. Platform Deck:
 - a. 16 Gauge sheet metal coated with electrostatically applied and baked anti-skid Sandex black paint.
 - b. Surface shall be slip resistant with the following features:
 - (1) Platform Size A (ADA Compliant)
 - (2) 31 ½" wide x 49 ¼" long
 5. Platform Operation:
 - a. Automatic Fold: Folded and unfolded electrically from the call station.
 - b. Emergency Manual Fold: When unit is left in the open position, the platform may be manually folded and retained in the closed position.
 6. Under Platform Obstruction Sensing:
 - a. Provide under-platform sensing device to stop the platform from traveling in the downward direction when encountering 4 lbs. of pressure.
 - b. Platform is permitted to travel in the opposite direction of the obstruction to allow clearing.
 7. Passenger Restraining Arms:
 - a. Platform equipped with retractable passenger restraining arms in compliance with ASME A18.1a, latest edition.
 - b. Arms stop moving when an obstruction causing 4 lbs. of pressure is encountered and will immediately retract when the signal is removed.
 - c. Provide with means to manually unlock and open the restraining arms for passenger emergency evacuation.
 - d. Arms are folded and unfolded electrically from the call stations or platform controls.
 - e. Top of arms mounted 32" to 38" above the platform deck. When in guarding position, the arms are located above the perimeter of the platform.
 - f. The gaps between ends of arms shall not exceed 4".
 8. Boarding Ramps:
 - a. Provide boarding sides of platform with retractable ramps positioned for travel at a height of 6" measured vertically above the platform deck.
 - b. Lock ramps in their guarding positions during travel. When the platform is at the landing, only the retractable ramp servicing the landing shall be operable.
 - c. Ramps shall be folded and unfolded electrically.

- d. Retractable ramps in the guarded position, shall withstand a force of 125 lbs. applied on any 4" x 4" area. This force shall not cause the height of the ramp, at any point in its length, to be less than 6" measured vertically above the platform deck.
 - e. Provide a means to manually unlock the ramps for emergency evacuation when platform is located at a landing.
 - f. Provide a bi-directional obstruction sensitive device on the travel direction end of the platform to stop lift when 4 lbs. of pressure is encountered on either from inside or outside of the platform. Platform is permitted to travel in the opposite direction of obstruction to allow clearing.
 - g. When platform folds, passenger restraining arms shall fold down and be covered by the folded platform.
9. Platform Kick Plate:
- a. Provide non-boarding and non-guide-rail side of the platform with a kick plate barrier of not less than 6" in height, measured vertically from the platform deck.
 - b. When the platform is folded, the kick plate shall cover the platform controls providing protection from vandalism.
10. Pedestrian Safety Lights:
- a. Equip platform with amber pedestrian safety lights located at both ends of the platform to alert pedestrian traffic that the platform is on the stairway.
11. Hand Grips:
- a. Equip platform with a 1¼" tubular steel hand grip or grab bar at the top of the platform. The hand grip is to cover the entire width of the platform.
12. Clearance Dimensions:
- a. When folded platform shall not protrude more than 10¼" from the mounting surface when folded and stored.
 - b. When unfolded and in use, platform shall not protrude more than 40¼" from wall.
13. Controls:
- a. Platform Controls: 24 VDC Low Voltage type.
 - b. Platform equipped with emergency stop switch located within reach of the passenger. 37 1/8" Above platform deck. When activated, the emergency stop button shall cause electric power to be removed from the drive system stopping lift immediately.
 - c. Operating controls shall be two separate 1½" diameter round constant pressure buttons with directional arrows mounted on the front surface of the platform control panel.
 - d. Directional buttons shall prompt the user with the available travel direction by illuminating the appropriate button.
 - e. When platform arrives at landing and the user releases the directional button, the passenger restraining arms and boarding ramp shall unfold automatically allowing passenger to disembark.

- f. Platform control panel shall include a receptacle for an optional plug-in hand-held attendant pendant control.
- g. Platform shall be equipped for:
 - (1) Keyed Operation
 - (2) Provide control wiring to allow the platform to be folded into the storage position from the opposite call station.
 - (3) Provide control wiring to allow the platform to be called to the opposite landing in the folded open position.
- h. Passenger Seat: Fold-down type with safety belt.
- i. Platform Deck Light: Integral lamp automatically activated when platform is in unfolded position.
- j. Platform Security Lock: Provide to prevent unauthorized unfolding of the platform.
- k. Attendant Hand Held Pendant Control: Provide lift with a plug-in pendant control for attendant operation.
- l. Autofold Platform: Automatically fold platform into storage position when left unused in open position at any landing for 3 minutes.
- m. Pedestrian Audio Alert: Provide chime mounted on platform to indicate platform is folded up and in motion, traveling on stairway.
- n. Platform On Board Emergency Alarm: Provide platform with on board alarm that sounds when emergency stop button is pushed. Provide battery back-up for platform on board alarm. The alarm shall have a battery back-up so that it will continue to function if lift power is lost.
- o. Under Hanger Sensing: Provide bottom of platform hanger with a sensing plate to stop the platform from traveling in the downward direction when encountered with 4 lbs (1.8Kg) of pressure. It shall be possible to drive the platform away from the obstruction.
- p. Side of Hanger Obstruction Device: Provide a sensor that detects obstructions in the path of the side of the hanger. Lift shall stop immediately and not travel until the obstruction is removed. It shall be possible to drive the platform away from the obstruction.

B. Drive and Guide Rail System:

1. Operation:

- a. Motor: $\frac{3}{4}$ HP electric motor with an integrated brake.
- b. Required power: 208-240 VAC, single phase, 50/60 Hz. on a dedicated 20 amp circuit. Rated current shall be 7 amps for operation with rated load.
- c. Power Transmission: Worm gear reduction to a pinion moving on a fixed gear rack.
- d. Locate roped sprocket drive system consisting of a motor, gearbox and PCC controller (Programmable Configuration Controller) at the upper end of the tubes. PCC controller shall be custom programmed to soft start and stop and the slow down platform travel speed for all corners and landings of the lift. Normal operating speed shall be 20 feet per minute, slowing to 50 percent of this speed before entering and while rounding corners.
- e. Equip drive with an emergency manual lowering system.
- f. A frequency inverter shall be used to smoothly start and stop the platform motions.
- g. Drive carriage and associated control devices to be located within the platform conveyance.

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8. Rail Mounting:

- a. Direct Mount Solid Walls: Rails directly mounted to the stairway wall.
- b. Tower Mount Struts: Provide with 2 ½" by 2 ½" hollow structural steel tubular posts to support the guide rails. (TBD)

C. Pedestrian Handrail Integrated with Guide Rail:

- 1. A third rail acting as a handrail shall be added where existing handrails are either removed or blocked by the lifting equipment.
- 2. The top of the handrail gripping surface shall be between 34" and 38" above the stair nosing and have a smooth gripping surface 1 ½" in diameter.
- 3. Handrail shall be in the same vertical plane as the guide rail system.
- 4. Handrails shall be mounted to the tube assembly and shall not be interrupted by newel posts, or other construction elements or obstructions.

D. Call Stations:

- 1. Provide a call station at each serviced landing that will automatically shut off if left unattended for over 2 minutes.
- 2. Call stations, 24 V low voltage or 9V wireless (TBD) with four illuminated 2" by 2" square membrane touch sensitive buttons: one touch platform fold, one touch platform unfold and two directional call and send buttons.
- 3. Provide call stations with Smart-Lite Technology to prompt the user with the next sequential step of operation. Call station buttons will emit an audible "beep" when pushed to confirm button activation to the user.
- 4. Call stations shall be equipped for:
 - a. Keyless operation
- 5. Provide Attendant Call buttons on each call station.
- 6. Call Station Mounting:
 - a. Lower and Intermediate landing call station.
 - (1) Provide surface mounted call station.
 - (2) Provide flush mounting call station painted finish collars to trim all call stations that are recessed into the walls.
 - b. Upper landing call station.
 - (1) Provide surface mounted call station on guide rail.
 - (2) Surface mount on wall.
 - (3) Provide flush mounting call station painted finish collars to trim all call stations that are recessed into the walls.

- c. Provide free-standing mounting pedestals for call stations located as follows:
 - (1) Lower landing
 - (2) Intermediate Landing
 - (3) Upper landing

E. Additional Safety or Code Requirements:

- 1. Wall Mounted Audio Visual Alerts: Provide with adjustable volume control that sound while the lift is in operation and are visible by pedestrian traffic from all flights and landings.

F. Finish Environment Requirements:

- 1. Design and fabricate lift to manufacturer's standard design for exterior location.
- 2. Stainless Steel Components: Design and fabricate lift using the following:
 - a. Guide rails shall be supplied in stainless steel.
 - b. Handrails shall be supplied in stainless steel.
 - c. Support towers shall be supplied in stainless steel.
 - d. Drive box shall be supplied in stainless steel.
 - e. Platform sensing plate shall be supplied in stainless steel.
 - f. Fasteners for rail assembly and anchoring shall be supplied in stainless steel.
- 3. Design and fabricate lift to manufacturer's standard design for outdoor location.
 - a. Lift to include all modifications recommended by manufacturer for reliable performance in outdoor climate of lift installation site.
 - b. Provide an outdoor weatherproofing package including zinc rich primer on steel surfaces, weather-resistant sealant on the electrical components, stainless steel or plated fasteners and a weatherproofed stainless steel or zinc plated drive box.
 - c. Platform control cover shall be fabricated of a Silver Grey injection- molded polymer.
 - d. Platform Cover: Provide a durable and weather resistant nylon platform cover for protection.
- 4. Painting: After pre-treating paint with electrostatically applied and baked powder coat as follows:
 - a. Custom color as selected by Architect from manufacturer's standard RAL colors.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify required supports are correct.

- C. Verify electrical rough-in is at correct locations.
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install platform lifts in accordance with in compliance with regulatory requirements specified and the manufacturer's instructions.
- B. Install system components and connect to building utilities.
- C. Accommodate equipment in space indicated.
- D. Startup equipment in accordance with manufacturer's instructions.
- E. Adjust for smooth operation.

3.4 FIELD QUALITY CONTROL

- A. Perform tests in compliance with regulatory requirements specified and as required by authorities having jurisdiction.
- B. Schedule tests with agencies and Architect, Owner and Contractor present.

3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 144213