

Project Manual

VOLUME 1

PROJECT NO. 291036-01

PROJECT TITLE: Renovations to Relocate
Admissions for Rehab of
Administration Bldg –
Phase 1A

DATE: 12 June 2023

State University of New York

at

Purchase College

State University Construction Fund
H. Carl McCall SUNY Building
353 Broadway
Albany, New York 12246



Kliment Halsband Architects
115 Fifth Avenue, 3rd Floor
New York, NY 10003

August 2020

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STATE UNIVERSITY CONSTRUCTION FUND NOTICE TO BIDDERS

The State University Construction Fund will receive sealed Proposals for Project No. **291036-01 Renovations to Relocate Admissions for Rehab of Administration Bldg – Phase 1A** at Purchase College until 2:00 p.m. Local Time on **11 July 2023** at the Fund's Office at the H. Carl McCall SUNY Building, 353 Broadway, Albany, NY 12246, where such proposals will be publicly opened and read aloud in Room S201. Bidders are encouraged to view the live stream of the bid opening broadcast on the day of the bid by using the link posted on the Fund's web page: <https://sucf.suny.edu/> Bidders are encouraged to submit their bids early by delivery service and use the bid modification process permitted in part (7) of Section 3 of the Information for Bidders.

All proposals and/or proposal modifications must be received and stamped in by the Fund no later than 2:00 p.m. on the bid opening date. The Proposal may be hand delivered to Room S204A or be mailed or sent by delivery service to the State University Construction Fund, H. Carl McCall SUNY Building, 353 Broadway, Albany, New York 12246. Each bid must be identified, on the outside of the envelope, with the name and address of the bidder and designated a bid for the Project titled above. When a sealed bid is placed inside another delivery jacket, the bid delivery jacket must be clearly marked on the outside "BID ENCLOSED". Proposals that are mailed to the Fund must be delivered by 1:00 p.m. on the day of the scheduled bid opening and mailed Proposals must be sent using a delivery method that provides tracking and locating the Proposal. The Fund assumes no responsibility for any Proposal that is not delivered to the aforesaid address by 1:00 p.m. on the bid opening date. See Section 3 of the Information for Bidders for additional instructions regarding proposals, including modifications. Please be advised that all individuals who access the H. Carl McCall SUNY Building to submit bids or attend bid openings will be required to present picture identification to building security officials and obtain a visitor's pass prior to entering the building. Bidder's arriving prior to 12:30 PM on the bid opening date may be asked to wait outside the building. There is no parking available for bidders at the H. Carl McCall SUNY Building and violators may be towed.

To assure delivery of their bid prior to the aforesaid deadline for receipt of bids, bidders should allow sufficient time for individuals to find public parking for their vehicles, to find the Visitor Entrance to the building, to be processed through building's health and security screening, to find the Fund's office within the building, to properly complete and submit their proposal, and to allow for delays that are typical for congested urban areas and crowded public bid openings. Due to space limitations, the Fund reserves the right to control physical access into Room S201 and direct the individuals to other spaces in the building where they can view the live stream broadcast of the bid opening on their personal electronic device.

To assure delivery of their bid modification, if any, prior to the aforesaid deadline for receipt of bids, bidders should allow sufficient time to account for internet connectivity problems, to correct email address errors, to be processed through spam filters and security software and to allow or delays that are typical for congested internet servers. Bidders may at any time send an email to modifymybid@suny.edu alerting the Fund of your intent to modify.

All work will be completed within **340** calendar days from receipt of the Notice to Proceed.

The Fund's project specific goals for this project are **12%** MBE and **8%** WBE and **3%** SDV. See Sections 00 21 13 20 Information for Bidders, 00 21 13 30 MWBE Utilization Plan and Instructions and 00 21 1 30 SDVOB Form and Instructions for more information.

A pre-bid conference and project walk through will be held on **22 June 2023** with all contractors assembled at **10:00am**, at **the CMFT Building Lobby**.

For additional information, see Section 00 25 13 PreBid Meetings.

There is no free parking on campus for those attending the walk through. Violators may be ticketed and towed.

Bidding and Contract Documents may be examined free of charge at:

Consultant's Office: Kliment Halsband Architects - a Perkins Eastman Studio, 115 Fifth Avenue, New York, NY 10003
 Primary - Michelle Frederick, ph: 212-353-7278, e: m.frederick@perkinseastman.com
 Secondary - Nicholas Wan, ph: 646.786.1739, e: n.wan@perkinseastman.com

Campus at which the work is to be performed: Purchase College – CMFT Building, 735 Anderson Hill Road, Purchase, NY

CMD (formerly Reed) (*subscribers only*): Visit www.cmdgroup.com.

- Albany Center for Economic Success
- Construction Contractors of the Hudson Valley
- Dodge – Albany
- Eastern Contractors Association – Albany
- Reed Construction Data
- Black Women Enterprises – Hempstead
- NYS Assn of Minority Contractors – Brooklyn

Plans will be available on **12 June 2023** from **PE Plan Desk, 115 Fifth Avenue, 3rd Floor, New York, NY 10003** in either electronic or paper format (**contact Consultant's primary & secondary points of contact in advance**). Bidders will be able to access the project online at the Printer's web site to be provided by Architect.

Bidders who register as a planholder through the Printer may acquire the bidding and contract documents using the following options:

1. For a fee of ten dollars (\$10), interested firms may request and receive an electronic download of the bidding and contract documents. At the bidder's expense, purchase a printed copy or copies of the bid set.
2. For a fee of ten dollars (\$10), interested firms may request and receive a CD with electronic copies of the bidding and contract documents. At the bidder's expense, purchase a printed copy or copies of the bid set.
3. For a fee of \$49, interested firms may request and receive a printed copy of the complete set. An electronic download or copy on CD will not be provided.

The Fund waives fees and deposits for sets of the Contract Documents requested by NYS certified Minority- and Women-Owned Business Enterprise or Service-Disabled Veteran-Owned Business Enterprise. Payments of less than \$50.00 are non-refundable. Deposits of \$50.00 or more will be returned to all entities who have paid the aforesaid deposit for the entire set of Bidding and Contract Documents and who return such sets to the Consultant in good condition within forty-five (45) calendar days after the opening of bids, not exceeding five (5), so returned to the Consultant.

Bids must be submitted in duplicate in accordance with the instructions contained in the Information for Bidders. A Bid Security will be required for each bid in an amount not less than five (5) percent of the Total Bid. To provide for an efficient bid opening, do not include documents other than your Proposals and securities in your bid envelope. It is the policy of the State of New York and the Fund to encourage minority and women-owned business enterprise participation in this project by contractors, subcontractors and suppliers. All bidders are expected to cooperate in implementing this policy.

Please be advised that the Fund's insurance requirements are contained in the bidding documents. Paragraph (1)a of Section 5.06 of Article V of the Agreement requires that all insurance must be provided by companies approved by the Fund, licensed to do business in the State of New York ("admitted" carriers), and rated at least "A-" by A.M. Best Company. Excess line insurers are not acceptable. See <https://sucf.suny.edu/sites/default/files/docs/GuidanceToSubmitInsuranceCertificates.pdf> All successful bidders will be required to furnish a Performance Bond and a Labor and Material Bond pursuant to State Finance Law for 100% of the amount of the Contract.

Please visit <https://sucf.suny.edu/sites/default/files/docs/BidandPostBidChecklist.pdf> and download the “Bid and Post Bid Checklist” that gives bidders a one page summary of how to be prepared when bidding.

Please note that Sections 139-j and 139-k of the State Finance Law imposes certain restrictions on communications between the Fund and bidders during the procurement process. Pursuant to those sections of law, the Fund designates the following email addresses for persons to which communications concerning this procurement may be sent:

SUCF.ConstructionBids@suny.edu to contact one of the following people:

Robbilee Luedtke (518) 320-1837, Samantha Lord, Robert Kanarkiewicz, Jeremy Clausi, or Heather Loukmas.

SUCF.OpportunityAdmin@suny.edu for MWBE SDVOB issues only to contact the following person:
Scott Clay.

SUCF.Insurance@suny.edu for insurance issues only.

Contact with other than the above-designated Fund employees concerning this procurement may result in the rejection of your bid. To purchase plans or for technical inquiries specific to this project, please contact the Architect or Engineer of Record.

Notice on Vendor Responsibility Questionnaires (CCA-2): The CCA-2 has been updated by the Office of the State Comptroller and submission of the updated CCA-2 will be required for any bids received after 9/1/2022; however, the updated CCA-2 may be used prior to this date. It is recommended that bidders and nominated subcontractors review and re-certify their CCA-2 as soon as feasible. See Information for Bidders Section 8, Submission of Post Bid Information, for additional information.

INTEGRITY HOTLINE: As part of its Corporate Integrity Program, the Fund operates an Integrity Hotline 24-hours a day, seven-days a week. If you have knowledge of or suspect fraudulent, unethical, or other misconduct on a Fund project, please call the Hotline toll-free at 866-543-8107 or locally at 518-320-1525. All calls will be received and reviewed only by the Corporate Integrity Officer. Calls can be made anonymously or on a confidential basis. The identity of confidential callers will be fully protected. The Hotline is not equipped with Caller ID and no effort will be made to identify anonymous callers.

The Fund reserves the right to reject any or all bids.

On bid day, bidders must:

- Be aware of the requirements of the **project specific** Section 00 21 13 10 Notice to Bidders.
- Be aware of the requirements of the **project specific** Section 00 21 13 20 *Information for Bidders*.
- Provide two (2) complete original **project specific** Proposals per Sections 3 and 5 of the *Information for Bidders*. **Proposals with major informalities will be rejected.**
 - Attachment A of the Proposal (List of Completed Similar Construction Contracts) must be completed. **Do not submit a blank form** or insert "refer to attached lists".
 - Before completing Attachment A, read the **project specific** requirements of Section 7 Qualification of Bidders and Section 01 11 00 Description of Work (Section A).
- Provide two (2) complete original Bid Bonds per the Instructions for Execution of Bid Bond and Acknowledgment, or other bid security per Section 6 of the *Information for Bidders*.
 - Use the Fund's form of Bid Bond with date Dec 2015 in the lower right-hand corner.
- Deliver the Proposals and bid security **using the special bid envelope** per the *Notice to Bidders*.
- Be in compliance with NYS Dept. of State registration requirements. Nominated subs must also comply. Business entities must be in the DOS database. Search for entities at this web site:
 - <https://apps.dos.ny.gov/publicInquiry/>
- Be aware that all insurance must be provided by companies approved by the Fund, licensed to do business in the State of New York (i.e., "admitted" carriers), and rated at least "A-" by A.M. Best Company. Use the link below to the Fund's website for complete guidance <https://sucf.suny.edu/sites/default/files/docs/GuidanceToSubmitInsuranceCertificates.pdf>
 - Please consult your insurance agent prior to bidding, who should be aware of Sections 5.06 and 5.07 of the [Agreement](#) and other requirements of Article V.
 - Excess line insurers are not acceptable. Carriers must be listed in the NYS Department of Financial Services database.
 - <https://myportal.dfs.ny.gov/web/guest-applications/ins.-company-search?null=>
- Be aware of project specific physical conditions and subsurface conditions that could reasonably anticipated from the provisions of the Contract Documents, Section 00 31 00 Available Project Information (if applicable), and other information available to bidders and from the bidder's own inspection and examination of the site.

Post bid, bidders must:

1. Within 48 Hours after the time of the Bid Opening:
 - Provide a completed Appendix "A" per Section 8(1)d of the *Information for Bidders*.
 - Provide a Construction Schedule per Section 8(1)b of the *Information for Bidders*.
 - Provide a completed [NYS Vendor Responsibility Questionnaire For-Profit Construction \(CCA-2\)](#) per Section 8(1)a of the *Information for Bidders*.
 - Confirm your CCA-2 shows financial information required by Section 7(2) of the *Information for Bidders*.
 - Confirm your CCA-2 Attachment A shows completed construction contract information required by Section 7(3) of the *Information for Bidders*.
 - Confirm your CCA-2 includes the additional information requested for "Yes" responses, if any.
 - Confirm your CCA-2 Attachments A and B show current information for owners, architects and their current telephone numbers for contracts listed.
 - Provide names of proposed subcontractors and Attachment A's showing their experience per Section 8(1)c.iv of the *Information for Bidders*.

00 21 13 15 CONTRACTOR'S BID AND POST BID CHECKLIST

- Provide detailed descriptions of work for projects listed in Attachment A of your Proposal (List of Completed Similar Construction Projects) if such descriptions did not fit or if requested by the Fund.
 - Cooperate with the Fund's Consultant and provide other information they may reasonably require to evaluate your bid in detail.
2. Within seven days after the time of the Bid Opening:
- Provide CCA-2 for each proposed subcontractor per Section 8(1)c of the *Information for Bidders*.
 - Confirm the CCA-2 includes the additional information requested for "Yes" responses.
 - Confirm the CCA-2 Attachments A and B show construction contract information for owners, architects and their current telephone numbers.
 - Provide an MWBE Utilization Plan per Section 8(3) of the *Information for Bidders*.
 - Provide an EEO Statement and Plan per Section 8(4) of the *Information for Bidders*.
 - Provide proof of workers' compensation, disability benefits insurance coverage, and as requested, names of all insurance carriers.
 - This is the Workers Comp/Disability link for employers:
<http://www.wcb.ny.gov/content/main/Employers/Employers.jsp>
 - This is the link with a description of the required forms for Workers Compensation and Disability:
<http://www.osc.state.ny.us/agencies/guide/MyWebHelp/Content/XI/18/G.htm>
3. Prior to the Fund sending you a Notice of Award letter:
- Provide additional information per Section 8(5) of the *Information for Bidders*, if requested.
4. After your receipt of the Notice of Award letter, provide the following by the date stipulated in the letter transmitting the Notice of Award:
- Sign and complete the Contractor's portion of the **Project Specific** Agreement sent to you by the Fund.
 - Provide required bonds per Section 10 of the *Information for Bidders*.
 - Provide the 120-day Construction Schedule required by the General Requirements, Special Conditions paragraph titled "Project Schedule."
 - Provide the completed insurance forms per Sections 5.06 and 5.07 of the Agreement. See <https://sucf.suny.edu/sites/default/files/docs/GuidanceToSubmitInsuranceCertificates.pdf>
5. Prior to starting work:
- Be in receipt of the Notice to Proceed letter issued by the Fund.

Special Notice

Please be advised that Part 10 of the Proposal you signed requires your office to be timely and responsive in your submissions.

The Fund may begin the process to exercise its rights regarding your bid bond and/or making an adverse determination of responsiveness if you do not provide your proper and timely attention to our requests.

STATE UNIVERSITY CONSTRUCTION FUND INFORMATION FOR BIDDERS

Section 1 Definitions

All definitions set forth in the Agreement are applicable to the Notice to Bidders, Information for Bidders and the Proposal, all of which documents are hereinafter referred to as the Bidding Documents.

Section 2 Issuance of Bidding and Contract Documents

Drawings and Specifications will be issued by the Consultant upon request after payment of the deposit specified in the Notice to Bidders.

Section 3 Proposals

- (1) Proposals must be submitted in duplicate on the forms provided by the Fund. They shall be addressed to the Fund in a sealed envelope, provided by the Fund, marked with the name and address of the bidder, the title of the Project and the Project number. The Fund accepts no responsibility for Proposals that may be delivered by any courier or other messenger service that does not contain all of the above-noted information on the outside of a sealed envelope. Facsimile or email copies of the Proposal will not be accepted by the Fund.
- (2) All blank spaces in the Proposal must be filled in and, except as otherwise expressly provided in the Bidding Documents; no change is to be made in the phraseology of the Proposal or in the items mentioned therein.
- (3) Proposals that are illegible or that contains omissions, alterations, additions or items not called for in the Bidding Documents may be rejected as informal. In the event any bidder modifies, limits or restricts all or any part of its Proposal in a manner other than that expressly provided for in the Bidding Documents, its Proposal may be rejected as informal.
- (4) Any Proposal may be considered informal which does not contain prices in words and figures in all of the spaces provided or which is not accompanied by a bid security in proper form. In case any price shown in words and its equivalent shown in figures do not agree, the written words shall be binding upon the bidder. In case of a discrepancy in the prices contained in the Proposal forms submitted in duplicate by the bidder, the Proposal form which contains the lower bid shall be deemed the bid of the bidder; provided, however, the Fund at its election may consider the Proposal of such bidder informal.
- (5) If the Proposal is made by a corporation, the names and places of residence of the president, secretary and treasurer shall be given. If by a partnership, the names and places of residence of the partners shall be given. If by a joint venture, the names and addresses of the members of the joint venture shall be given. If by an individual, the name and place of residence shall be given.

- (6) No Proposal will be considered which has not been deposited with the Fund at the location designated in and prior to the time of opening of bids designated in the Bidding and Contract Documents or prior to the time of opening as extended by Addendum.
- (7) Bids may be modified, withdrawn or canceled only in writing or by email notice received by the Fund prior to the time of opening of bids designated in the Bidding and Contract Documents. A written or email notice of modification, withdrawal or cancellation shall be marked by the bidder with the name and address of the bidder, the title of the Project and the Project number. Upon receipt by the Fund, a duly authorized employee of the Fund shall note thereon the date and time of receipt and shall thereupon attach said written or email notice of modification, withdrawal or cancellation to the envelope submitted by the bidder pursuant to subdivision (1) of this Section. *Bid Modification email address: modifymybid@suny.edu . Submit modification amount only, (i.e. "deduct" or "add" \$XXX, not revised total bid amount. For email notice, submit modification as an attachment in portable document format (PDF) on bidder's letterhead signed by a duly authorized representative of the bidder.*
- (8) Permission will not be given to modify, explain, withdraw or cancel any Proposal or part thereof after the time designated in the Bidding and Contract Documents for the opening of bids, unless such modification, explanation, withdrawal or cancellation is permitted by law and the Fund is of the opinion that it is in the public interest to permit the same.

Section 4 Examination of Bidding and Contract Documents

- (1) Prospective bidders shall examine the Bidding and Contract Documents carefully and, before bidding, shall make written request to the Consultant (with a copy thereof to the Fund) for an interpretation or correction of any ambiguity, inconsistency or error therein which should be discovered by a reasonably prudent bidder. Such interpretation or correction as well as any additional Contract provision the Fund shall decide to include will be issued in writing by the Consultant as an Addendum, which will be sent to each person recorded as having received a copy of the Bidding and Contract Documents from the Consultant, and which also will be available at the places where the Bidding and Contract Documents are available for inspection by prospective bidders. Upon such emailing or delivery and making available for inspection, such Addendum will become a part of the Bidding and Contract Documents and will be binding on all bidders whether or not the bidder receives or acknowledges the actual notice of it. Prospective bidders are responsible for ensuring that all addenda have been incorporated into the bid. The requirements contained in all Bidding and Contract Documents shall apply to all Addenda.
- (2) Only the written interpretation or correction so given by Addendum shall be binding. Prospective bidders are warned that no trustee, officer, agent or employee of the Fund or the Consultant is authorized to explain or interpret the Bidding and Contract Documents by any other method, and any such explanation or interpretation, if given, must not be relied upon.

Section 5 Computation of Bid

- (1) In computing their bids, bidders are not to include the sales and compensating use taxes of the State of New York or of any city and county in the State of New York for any supplies or materials which are incorporated into the completed Project as the same is exempt from such taxes.
- (2) Unit prices may be inserted in the Proposal by the Fund or the bidder at the discretion of the Fund. Any unit prices listed in the Proposal by the Fund are based upon the Consultant's appraisal of a fair cost for the work involved. Such listed prices will be binding upon both the bidder and the Fund unless the bidder wishes to change any of such unit prices by crossing out the listed unit price and inserting a revised unit price. Such revised unit price shall not be binding upon the Fund unless it accepts the same, in writing, before it issues a Notice of Award. In the event the Proposal contains blank spaces for unit prices or the bidder revises any stated unit price, the amount of such unit prices for additions shall not vary by more than 15 percent from the prices inserted by the bidder for deductions, and, if the variance of such prices exceeds 15 percent, the Fund may adjust the deduction price inserted by the bidder so that it is only 15 percent lower than the addition price inserted by the bidder. In addition, the Fund may adjust any unit price filled in by a bidder to an amount agreeable to both the bidder and the Fund or it may reject any unit prices.
- (3) Alternates, if any, listed in the Proposal and described in Section 01 23 00 (Section B) of the Technical Specifications shall be accepted in the order indicated and will be used in combination with the Total Bid to determine the low bidder. Unit prices will not be used to determine the low bidder.

Section 6 Payment of Bid Security

- (1) Each Proposal must be accompanied by the required amount of the bid security in the form of a bank draft or certified check, payable at sight to the Fund and drawn on a bank authorized to do business in the United States, or by a Bid Bond, on a form approved by the Fund, duly executed by the bidder as principal and having as surety thereon a surety company or companies, approved by the Fund, authorized to do business in the State of New York as a surety. Attorneys-in-fact who execute a Bid Bond on behalf of a surety must affix thereto a certified and effectively dated copy of their power of appointment.
- (2) The Fund will return, without interest, the bid security of a bidder, unless such security be in the form of a Bid Bond which will not be returned by the Fund, in accordance with the following procedure:
 - a. To all bidders except the apparent three (3) lowest bidders within two (2) working days after the opening of bids.
 - b. To any bidder submitting a Bid Bond, meeting the requirements of paragraph (1) hereof, after the opening of bids, as a substitute for a bank draft or certified check within two (2) working days after the Fund's approval of such Bid Bond.

- c. To the apparent three (3) lowest bidders, unless their bid security was previously returned, within two (2) working days after delivery to the Fund by the successful bidder of the executed Agreement and required Bonds, or within two (2) working days of the Fund's rejection of all bids or within two (2) working days after the expiration of forty-five (45) calendar days after the bid opening or within the time to which the issuance of a Notice of Award may have been extended, whichever event shall occur last.
- (3) The Fund reserves the right to deposit bid security drafts or checks pending final disposal of them.

Section 7 Qualifications of Bidders

- (1) A bidder must demonstrate, to the satisfaction of the Fund, that it has successfully completed three (3) contracts similar in size, scope and complexity to this contract within the last ten (10) years.
- a. For scope and complexity, similar work is defined as a phased renovation within an occupied building in which works should not preclude occupancy. Work involves demolition, abatement, and an tie-ins & extensions of existing building systems in order to support the renovated spaces. This work is further described in the General Requirements, Section 01 11 00, Description of Work.
 - b. The determination of relevant contract experience in terms of size, scope and complexity will be at the sole discretion of the Fund.
 - c. The above three projects shall be submitted on Attachment A of the Proposal, "List of Completed Similar Construction Projects" (the List). If the List is not provided or is missing information, and/or is found to have erroneous information or information that is no longer current, a Proposal may be rejected as not responsive. If requested by the Fund, the bidder may be permitted to add missing information, modify and/or explain erroneous information or information that is no longer current on the List. Modifications and/or explanations of the List must be received within 48 hours of receipt of the Fund's request.
- (2) All prospective bidders must demonstrate to the satisfaction of the Fund that they have the skill and experience, as well as the necessary facilities, ample financial resources, ability to manage staff and subcontractors effectively, ability to anticipate and plan construction work for optimal progress, ability to create, strive for and maintain working environments and relationships that are constructive, communicative and cooperative, organization and general reliability to do the work to be performed under the provisions of the Contract in a satisfactory manner and within the time specified.
- (3) Each bidder must demonstrate to the satisfaction of the Fund that it has working capital available for the Project upon which it is bidding in an amount equal to 15 percent of the first \$100,000 of the amount of its Total Bid plus 10 percent of the next \$900,000 plus 5 percent of the remainder of its Total Bid. Working capital is defined as the excess of current assets over current liabilities. The Fund defines current assets as assets which

can be reasonably expected to be converted into cash within a year, and current liabilities as debts which will have to be paid within a year.

- (4). The Fund may make such investigation as the Fund deems necessary to determine the responsibility of any bidder or to determine the ability of any bidder to perform the Work. Bidders shall furnish to the Fund all information and data required by the Fund, including complete financial data, within the time and in the form and manner required by the Fund. The Fund reserves the right to reject any bid if the evidence required by the Fund is not submitted as required or if the evidence submitted by or the investigation of any bidder fails to satisfy the Fund that the bidder is responsible, or is able or qualified to carry out the obligations of the Contract or to complete the Work as contemplated.
- (5) At the time of the bid opening, all bidders and subcontractors, domestic and foreign, must be in compliance with New York State business registration requirements. Contact the NYS Department of State regarding compliance.

Section 8 Submission of Post-Bid Information

- (1) Within forty-eight (48) hours after the opening of bids, each of the apparent three lowest bidders, unless otherwise directed by the Fund or otherwise provided in the Bidding and Contract Documents, shall submit to both the Fund and the Consultant:

- a. Evidence of a completed New York State Uniform Contracting Questionnaire (Vendor Responsibility Questionnaire For-Profit Construction (CCA-2)). Either email confirmation that the bidder's CCA-2 is current and certified in the New York State VendRep System (VendRep) within the last six months from the bid date, or deliver a certified paper format CCA-2, including all attachments, to the Fund.

The Fund recommends that vendors file the required CCA-2 online via the VendRep. To enroll in and use the VendRep, see the VendRep Instructions at http://www.osc.state.ny.us/vendrep/vendor_index.htm or go directly to the VendRep online at <https://portal.osc.state.ny.us>. To request assistance, contact the Office of the State Comptroller's ("OSC") Help Desk at 866-370-4672 or 518-408-4672 or by email at ciohelpdesk@osc.state.ny.us.

The paper format CCA-2 and accompanying definitions are available on the OSC website at the following location:

http://www.osc.state.ny.us/vendrep/forms_vendor.htm

- b. A working plan and schedule showing clearly, in sequence and time-scale, all significant activities of the work. The working plan and schedule shall be in the form of suitable charts, diagrams or bar graphs and shall be based on the Contractor's logic and time estimates for the anticipated time of commencement and completion of the work and its significant phases and activities and the interrelationship between such significant activities and other items pertinent to the work. This requirement is in addition to and not a substitute for the schedule requirements of Section 3.02 (Time Progress Schedule) of the Agreement.

Although the working plan and schedule submitted shall not be used in determining the lowest responsible bidder, failure to submit the working plan and schedule may result in the rejection of the Proposal as not responsive.

- c. The names and addresses of the bidder's proposed subcontractor for the Asbestos Abatement work of any value, and proposed subcontractors for Electrical Work, the Heating, Ventilating and Air-Conditioning Work and the Plumbing Work for each of said work categories valued at \$20,000 or more.
 - i. For each proposed subcontractor named, provide a completed "List of Completed Similar Construction Projects (the List)." If the List is not provided or is missing information, and/or is found to have erroneous information or information that is no longer current, a proposed subcontractor may be rejected. If requested by the Fund, the bidder may be permitted to add missing information, modify and/or explain erroneous information or information that is no longer current on the List; modifications and/or explanations of the List must be received promptly after receipt of the Fund's request.
 - ii. Only one proposed subcontractor should be named for each of such trades. Proposed subcontractors of the bidder may not be changed except with the specific written approval of the Fund.
 - iii. The naming of the bidder itself for any of such work is not acceptable and may result in rejection of the bidder unless the bidder can demonstrate to the Fund that it has successfully completed or substantially completed three (3) contracts similar in size, scope and complexity for the designated work within the last five (5) years. The determination of relevant contract experience in terms of size, scope and complexity will be at the sole discretion of the Fund.
 - iv. The bidder will be required to establish, to the satisfaction of the Consultant and the Fund, the reliability and responsibility of each of their said proposed subcontractors to furnish and perform the work described in the sections of the Specifications pertaining to each of such proposed subcontractors' respective trades. By submission of the "List of Completed Similar Construction Projects," a proposed subcontractor must be able to demonstrate that they have successfully completed or substantially completed three (3) contracts similar in size, scope and complexity for the designated work within the last five (5) years. The determination of relevant contract experience in terms of size, scope and complexity will be at the sole discretion of the Fund.
 - v. For each of the proposed subcontractors, the bidders must submit to the Fund, seven (7) calendar days after the bid opening, evidence of a completed New York State Uniform Contracting Questionnaire (Vendor Responsibility Questionnaire For-Profit Construction (CCA-2)). Either email confirmation that the subcontractor's CCA-2 is current and certified in the New York State VendRep System (VendRep) within the last six months from the bid date, or deliver a certified paper format CCA-2, including all attachments, to the Fund.

- vi. In the event that the Fund and the Consultant reject any of said proposed subcontractors, the bidder, within two (2) working days after receipt of notification of such rejection, shall again submit to the Fund and the Consultant the name of another proposed subcontractor in place of the one rejected and it will be required to establish to the satisfaction of the Fund and the Consultant the reliability and responsibility of said proposed subcontractor; When naming another proposed subcontractor, the bidder must promptly submit the proposed subcontractor's completed "List of Completed Similar Construction Projects" and their completed CCA-2.
 - vii. The bidder will not be permitted to submit another proposed subcontractor if it designated itself for any of the aforesaid categories of work.
 - viii. Proposed subcontractors of the bidder, approved by the Fund and the Consultant, must be used on the work for which they were proposed and approved and they may not be changed except with the specific written approval of the Fund.
- d. A breakdown of the amount of the bidder's Proposal. Such breakdown shall be prepared in accordance with the format included herein to as Appendix "A". No bidder shall be barred from revising, in the Contract breakdown required under the provisions of Section 4.08 of the Agreement, the various amounts listed in the bid breakdown required under the provisions of this Section. The amount set forth in said bid breakdown will not be considered as fixing the basis for additions to or deductions from the Contract consideration.
- (2) Within seven (7) calendar days after the opening of bids, the three low bidders shall submit to the Fund for its approval a Service-Disabled Veteran-Owned Businesses Utilization Plan on the form SDV-UP, which is bound in Section 00 21 13 30, Service-Disabled Veteran-Owned Business Utilization Plan (SDV-UP), of the Project Manual.
 - (3) Except for Contracts of \$100,000 or less, and unless otherwise directed by the Fund, **within seven (7) calendar days** after the opening of bids, the three low bidders shall **submit to the Fund** for its approval, a Minority and Women-owned Business Enterprise Utilization Plan (UP-1). The Utilization Plan should include the description of work and the estimated dollar value of subcontracts and supply contracts that will be awarded to Minority and Women-owned Business Enterprises.
 - (4) Except for contracts of \$100,000 or less, **within seven (7) calendar days** after the opening of bids, the three low bidders shall **submit to the Fund** for its approval, an Equal Employment Opportunity Statement.
 - (5) The above information and such other information as the Fund or the Consultant may request or obtain will be used by the Fund in determining the reliability and responsibility of the bidder and any proposed subcontractors. Each bidder must comply promptly with all requests by the Fund and the Consultant for information and must actively cooperate with the Fund and the Consultant in their efforts to determine the qualifications of the bidder and any proposed subcontractors. Failure to comply with the latter may result in the rejection of the Proposal as not responsive. All information required to be furnished to the Fund under this Section shall be sent to the State University Construction Fund,

Director of Capital Procurement, H. Carl McCall SUNY Building, 353 Broadway, Albany, New York 12246 or emailed to the Fund at SUCF.ConstructionBids@suny.edu unless a signed original is required to be submitted.

Section 9 Award of Contract

- (1) The award of the Contract shall be made to the bidder submitting the lowest bid that is responsive to the solicitation and who, in the sole opinion of the Fund, is qualified to perform the work involved and is responsible and reliable. The Fund shall determine the lowest bid by adding to or deducting from the Total Bid of the bidders the additive or deductive alternates, if any, the Fund elects to accept after the opening of the Proposals. Alternates will be accepted in the order they are set forth in the Proposal. The unit prices set forth in the Proposal for additions to or deductions from the work shall not be considered in determining the lowest bid.
- (2) The right is reserved, if, in the Fund's judgment, the public interest will be promoted thereby, to reject any or all Proposals, to waive any informality in any Proposal received or to afford any bidder an opportunity to remedy any deficiency resulting from a minor informality or irregularity. Without limiting the generality of the foregoing:
 - a. A Proposal may be rejected as not responsive if the bidder fails to furnish the required bid security or to submit the data required with or after its Proposal and this Information for Bidders.
 - b. A Proposal may be rejected as not responsive if the bidder cannot show to the satisfaction of the Fund: (i) that it has the necessary qualifications and capital; or (ii) that it owns, controls or can procure the necessary plant and equipment to commence the work at the time prescribed in the Contract and thereafter to prosecute and complete the work at the rate, or within the time specified; or (iii) that it is not already obligated by the performance of so much other work as is likely to delay the commencement, prosecution or completion of the work contemplated by the Contract.
 - c. A Proposal will be rejected as not responsive if it does not provide for the completion of the work by the date of completion specified in the Proposal.
- (3) The Fund also expressly reserves the right to reject any Proposal as not responsive if, in its opinion, considering the work to be performed, the facts, as to the bidder's business or technical organization, plant, financial and other sources of business experience compared with the work bid upon, justify rejection.
- (4) The award of the Contract shall not be construed as a guarantee by the Fund that the plant, equipment and the general scheme of operations and other data submitted by the bidder with or after its Proposal is either adequate or suitable for the satisfactory performance of the work.

Section 10 Required Bonds and Insurance

- (1) Unless otherwise agreed to by the Fund, within ten (10) working days after the receipt of Notice of Award, the Contractor shall procure, execute and deliver to the Fund and maintain, at its own cost and expense:
 - a. A Performance Bond and a Labor and Material Bond, both of which Bonds shall be on the form prescribed by the Fund and in an amount not less than 100 percent of the total amount of the Contract awarded to the Contractor by the Fund. Said Bonds must be issued by a surety company approved by the Fund and authorized to do business in The State of New York as a surety.
 - b. Proof of insurances with the specific coverage and limits required in Article V of the Agreement. Acceptable documents are:
 - i. Proof of NYS Worker's Compensation is only accepted on the C-105.2 or U-26.3 form.
 - ii. Proof of Disability insurance is only accepted on the DB-120.1 form.

Use the link below for a description of the required forms for Workers Compensation and Disability:

<http://www.osc.state.ny.us/agencies/guide/MyWebHelp/Content/XI/18/G.htm>
 - iii. All other proof of insurance must be on the Acord 25 Certificate of Liability Insurance form. Only an original (wet) signature is accepted. Stamped or digitized signatures (fax or email) are not acceptable.
 - c. The 120-day Schedule required by the General Requirements, Special Conditions paragraph 01 32 16, titled "Project Schedule."
- (2) Attorneys-in-fact who execute said Bonds on behalf of a surety must affix thereto a certified and effectively dated copy of their power of appointment.

Section 11 Requirements and Procedures for Participation by New York State -Certified Minority and Women -Owned Business Enterprises and Equal Employment Opportunities for Minority Group Members and Women

- (1) New York State Law

Pursuant to New York State Executive Law Article 15-A and Parts 140-145 of Title 5 of the New York Codes, Rules and Regulations, the Fund is required to promote opportunities for the maximum feasible participation of New York State-certified Minority and Women-owned Business Enterprises ("MWBES") and the employment of minority group members and women in the performance of the Fund contracts.

(2) Business Participation Opportunities for MWBEs

- a. For purposes of this solicitation, the Fund hereby establishes goals (see Section 01 26 43 Amendments (Section E) of the General Requirements for goals) for New York State-certified Minority-owned Business Enterprise (“MBE”) participation and for New York State-certified Women-owned Business Enterprise (“WBE”) participation (based on the current availability of MBEs and WBEs). A contractor (“Contractor”) on any contract resulting from this procurement (“Contract”) must document its good faith efforts to provide meaningful participation by MWBEs as subcontractors and suppliers in the performance of the Contract. To that end, by submitting a bid, the bidder agrees that the Fund may withhold payment pursuant to any Contract awarded as a result of this bid pending receipt of the required MWBE documentation. A directory of MWBEs can be viewed at: <https://ny.newnycontracts.com>. For guidance on how the Fund will evaluate a Contractor’s “good faith efforts,” refer to 5 NYCRR § 142.8 and Article VI, Section 6.03(2)d of the Agreement.
- b. The bidder understands that only sums paid to MWBEs for the performance of a commercially useful function, as that term is defined in 5 NYCRR § 140.1, may be applied towards the achievement of the applicable MWBE participation goal. The portion of a contract with an MWBE serving as a supplier that shall be deemed to represent the commercially useful function performed by the MWBE shall be 60 percent of the total value of the contract. The portion of a contract with an MWBE serving as a broker that shall be deemed to represent the commercially useful function performed by the MWBE shall be the monetary value for fees, or the markup percentage, charged by the MWBE.
- c. In accordance with 5 NYCRR § 142.13, the bidder further acknowledges that if it is found to have willfully and intentionally failed to comply with the MWBE participation goals set forth in a Contract resulting from this RFP, such finding constitutes a breach of contract and the Fund may withhold payment as liquidated damages.
- d. 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.
- e. By submitting a bid or proposal, a bidder agrees to demonstrate its good faith efforts to achieve the applicable MWBE participation goals by submitting evidence thereof in a format prescribed by the Fund.
- f. Additionally, a bidder will be required to submit the following documents and information as evidence of compliance with the foregoing:
 - i. An MWBE Utilization Plan in accordance with paragraph (3) of the above Section 8 Submission of Post Bid Information. Any modifications or changes to an accepted MWBE Utilization Plan after the Contract award and during the term of the Contract must be reported on a revised MWBE Utilization Plan and submitted to the Fund for review and approval.

- ii. The Fund will review the submitted MWBE Utilization Plan and advise the bidder of the Fund acceptance or issue a notice of deficiency within 30 calendar days of receipt.
 - iii. If a notice of deficiency is issued, the bidder will be required to respond to the notice of deficiency within seven (7) business days of receipt by submitting to the Fund 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 Fund to be inadequate, the Fund shall notify the bidder within five (5) business days and direct them accordingly. Failure to cooperate with the Fund in a timely manner may be grounds for disqualification of the bid or proposal.
- g. The Fund may disqualify a bidder as being non-responsive under the following circumstances:
- i. If a bidder fails to submit an MWBE Utilization Plan;
 - ii. If a bidder fails to submit a written remedy to a notice of deficiency;
 - iii. If a bidder fails to cooperate with the Fund; or
 - iv. If the Fund determines that the bidder has failed to document good faith efforts.
- h. The successful bidder will be required to attempt to utilize, in good faith, any MBE or WBE identified within its MWBE 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 Fund, but must be made no later than prior to the submission of a request for final payment on the Contract.
- i. Over the term of the Contract, the successful bidder will be required to submit to the Fund a monthly M/WBE Contractor Compliance & Payment Reporting in the electronic format prescribed by the Fund, documenting the progress made toward achievement of the MWBE goals of the Contract.

(3) Equal Employment Opportunity Requirements

- a. By submission of a bid in response to this solicitation, the bidder agrees with all of the terms and conditions of Schedule "A" - Provisions Required to Be Inserted by Law, including Clause 11 - Equal Employment Opportunities for Minorities and Women. The bidder is required to ensure that it and any subcontractors awarded a subcontract 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 bidder, undertake or continue 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, equal opportunity shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, termination, and rates of pay or other forms of compensation. This requirement does not apply to: (i) work, goods, or services unrelated to the Contract; or (ii) employment outside New York State.

- b. The bidder will be required to submit an Equal Employment Opportunity Policy Statement in accordance with paragraph (4) of the above Section 8 Submission of Post Bid Information.
- c. If awarded a Contract, bidder shall submit a Monthly Employment Utilization Report and shall require each of its subcontractors to submit a Monthly Employment Utilization Report in the electronic format prescribed by the Fund during the term of the Contract.
- d. Further, pursuant to Article 15 of the Executive Law (the “Human Rights Law”), all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor and sub-contractors will 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.

(4) Reports, Records and Documentation

- a. The Contractor shall file with the Fund monthly reports in the electronic form prescribed by the Fund regarding actions taken pursuant to this Section as well as a list of and value of subcontracts and supply contracts.
- b. The Contractor shall permit access to its books, records and accounts by the Fund for purposes of investigation to ascertain compliance with the provisions of this Section. The Contractor shall include this provision in every subcontract so that such provision will be binding upon each subcontractor.
- c. Failure to comply with the foregoing requirements entitles the Fund to take such action as the withholding of funds, suspension or termination of the Contract or such other actions or enforcement proceedings as allowed by the Contract. Such failure may also result in a finding of non-responsiveness, non-responsibility and/or a breach of the Contract.

Section 12 Service-Disabled Veteran-Owned Businesses (SDVOBs)

Article 17-B of the Executive Law enacted in 2014 acknowledges that Service-Disabled Veteran-Owned Businesses (SDVOBs) strongly contribute to the economies of the State and the nation. As defenders of our nation and in recognition of their economic activity in doing business in New York State, bidders are strongly encouraged and expected to consider SDVOBs in the fulfillment of the requirements of the project. Such partnering may be as subcontractors, subconsultants, suppliers, protégés or other supporting roles. SDVOBs can be readily identified on the directory of certified businesses at http://ogs.ny.gov/Core/docs/CertifiedNYS_SDVOB.pdf.

- a. Bidders are strongly encouraged to the maximum extent practical and consistent with legal requirements of the State Finance Law and the Executive Law, to use responsible and responsive SDVOBs as subcontractors to provide meaningful participation. Furthermore, bidders are reminded that they must continue to

utilize small, minority and women-owned businesses consistent with Article 15-A of Executive Law. Utilizing SDVOBs in State contracts will help create more private sector jobs, rebuild New York State's infrastructure, and maximize economic activity to the mutual benefit of the bidder and its SDVOB partners. SDVOBs will promote the bidder's optimal performance under any potential agreements, thereby fully benefiting the public sector programs that are supported by associated public procurements.

- b. Public procurements can drive and improve the State's economic engine through promotion of the use of SDVOBs by its bidders. The State, therefore, expects bidders to provide maximum assistance to SDVOBs in the performance of any potential agreement. The potential participation by all kinds of SDVOBs will deliver great value to the State and its taxpayers.

Section 13 Encouraging Use of New York State Business Businesses in Contract Performance

New York State businesses have a substantial presence in State contracts and strongly contribute to the economies of the state and the nation. In recognition of their economic activity and leadership in doing business in New York State, bidders/proposers for this contract for commodities, services or technology are strongly encouraged and expected to consider New York State businesses in the fulfillment of the requirements of the contract. Such partnering may be as subcontractors, suppliers, protégés or other supporting roles.

Bidders/proposers need to be aware that all authorized users of this contract will be strongly encouraged, to the maximum extent practical and consistent with legal requirements, to use responsible and responsive New York State businesses in purchasing commodities that are of equal quality and functionality and in utilizing services and technology. Furthermore, bidders/proposers are reminded that they must continue to utilize small, minority and women-owned businesses, consistent with current State law.

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 New York State business partners. New York State businesses will promote the Contractor's optimal performance under the contract, thereby fully benefiting the 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 expects bidders/proposers to provide maximum assistance to New York businesses in their use of the contract. The potential participation by all kinds of New York businesses will deliver great value to the State and its taxpayers.

- (1) Information on the availability of New York State subcontractors and suppliers is available from: New York State Department of Economic Development, Procurement Assistance Unit, One Commerce Plaza, Albany, New York 12245, Phone: (518) 474-7756, Fax: (518) 486-7577.

Section 14 Single Contract Responsibility

This is a single bid general construction project. The Contractor submitting the bid is responsible for all work associated with this Project.

Section 15 Examination of Site

A pre-bid conference and project walk-through will be held with all bidders, subcontractors and other planholders at the time and place specified in Section 00 25 13 Pre-Bid Meetings. No individual or additional walk-throughs will be provided. Failure to attend a walk-through shall not be the cause for extra payment.

Section 16 Procurement Lobbying Law Restrictions

Please be advised that State Finance Law Sections 139-j and 139-k include and impose certain restrictions on communications between the Fund and Bidders during the procurement process. A bidder is restricted from making contacts from the earliest notice of intent to solicit offers through receipt of the Notice to Proceed ("restricted period") to other than designated staff, unless it is a contact that is included among certain statutory exceptions set forth in State Finance Law Sections 139-j(3)(a). Designated staff is identified in the Notice to Bidders as of the date hereof. Fund employees are also required to obtain certain information when contacted during the restricted period and make a determination of the responsibility of the bidder pursuant to these two statutes. Certain findings of non-responsibility can result in rejection for contract award and in the event of two findings within a 4-year period, the Offerer/bidder is debarred from obtaining governmental Procurement contracts.

Bidders must also disclose whether any governmental entity has made a finding of non-responsibility within the previous four years based upon the failure to comply with Section 139-j of the State Finance Law or intentionally providing false or incomplete information to a governmental entity. The Form for this disclosure is on the last page of the Proposal and the bidder must fill out and sign this Form.

Further information about these requirements can be found on the State Office of General Services website (<https://ogs.ny.gov/ACPL/>) and the Fund website (<https://sucf.suny.edu/opportunities/procurement-lobbying-act-policy-and-procedures>).

Section 17 Requirements for Construction Activities To Address Public Health or Safety

The Bidder agrees it is responsible for complying with any and all health and safety requirements issued by federal, state or local entities, including but not limited to New York State Governor Office Executive Orders, New York State Department of Health rules, regulations and guidance, and other New York State, Fund or Campus laws, rules, regulations or requirements that exist or may be issued and/or amended during the bidding and/or performance of work on this Project.

With respect to the COVID-19 pandemic, Bidder specifically acknowledges and agrees that the NYS DOH Emergency Regulations, Interim COVID-19 Guidance for Construction Projects, "Guidance", and Campus Rules and Regulations, as set forth in General Requirements Section 01 35 29 10, all in effect at the time of this bid, are made a part of the contract work for

this Project. Bidder affirms that all costs and time associated with compliance with the current Emergency Regulations, Guidance and Campus Rules and Regulations are included in its bid. These requirements include, but are not limited to, requiring workers and personnel to continuously wear masks until mask use is no longer required by the Fund. The current Emergency Regulations and Guidance are available at the following websites:

<https://regs.health.ny.gov/regulations/emergency> (Use this link for COVID-19 Emergency Regulations including the Emergency Regulations issued August 27, 2021 - Face Coverings for COVID-19 Prevention)

<https://forward.ny.gov/industries-reopening-phase#phase-one-construction>

Notwithstanding the foregoing, Bidder agrees to comply with the Emergency Regulations, Guidance, and Campus Rules and Regulations as it may be amended or superseded in the future.

MWBE and SDVOB BUSINESS REQUIREMENTS FOR PROSPECTIVE BIDDERS

Consistent with the Fund's commitment and in accordance with Article 15-A and Article 17-B of the New York State Executive Law, contractors are required to ensure that good faith efforts are made to include meaningful participation by Minority and Women-Owned Businesses (MWBE) and Service Disabled Veteran-owned Businesses (SDVOB) in the Fund's construction program. The requirements apply to all Fund contracts in excess of \$100,000. The intent of the program is to encourage and assist in developing business relationships between prime contractors, MWBE and SDVOB subcontractors and suppliers. Contractors must be diligent and creative in order to develop a plan that complies with the program.

Receipt of the MWBE and SDVOB Utilization Plan is required within seven (7) calendar days after the bid opening. The MWBE and SDVOB firms listed on the Plan (s) are businesses the bidder intends to utilize on the project and are subject to verification by the Fund.

For many projects, it may be necessary to solicit the cooperation of principal subcontractors to assist in developing a meaningful utilization plan. In order for good faith efforts to be effective, contractors should begin plan development during pre-bid. A matter of special consequence is the Fund's contract requirement that principal subcontractors are nominated within 48 hours of the bid opening therefore, in the selection of principal subcontractors, the prime contractor should consider subcontractors who demonstrate efforts to assist with program requirements.

Consequently, we recommend that the prime contractor evaluate the level of MWBE and SDVOB participation and the good faith efforts to be provided by their principal subcontractors. Although ultimate responsibility for program compliance is with the prime contractor, the Contract Documents require that all subcontractors also comply with the contract provisions. **An inability to meet the contractual goals when subcontractor cooperation is not present, does not excuse the prime contractor from the responsibility.**

MWBE firms must be currently certified by New York State Department of Economic Development Corp. (ESDC) as a Minority or Women-Owned Business to comply with the program requirements. Certified firms are included in the Directory of Certified Minority and Women-Owned Business Enterprises. The Directory is available on the Internet at <https://ny.newnycontracts.com/>. It is the responsibility of the contractor to ensure firms are included in the Directory at the time of submission.

SDVOB firms must be certified by the Office of General Services, Division of Service-Disabled Veterans' Business Development to comply with the program requirements. Certified firms are included in a Directory of New York State Certified Service-Disabled Veteran-Owned Businesses. The Directory is available on the Internet at <https://online.ogs.ny.gov/SDVOB/search>

MWBE and SDVOB goals are separate and cannot be substituted one for the other. However, firms that hold both MWBE and SDVOB certifications may be included in both the MWBE and SDVOB Utilization Plans toward satisfaction of both goals.

The actual services provided by the MWBE and SDVOB firms must be essential in the performance of the scope of work for the applicable contract. **Utilization of a certified MWBE OR SDVOB firm as a conduit or pass through for participation credit is strictly prohibited.** It is the discretion of the Fund to determine whether services are essential in the performance of the scope of work and/or the appropriateness of work allowed for lower tier subcontracting in accordance with practices generally accepted in the construction industry. The services the MWBE and/or SDVOB firm will provide must be among those explicitly identified in the profile (codes) of firms as listed in the NYS Directory of MWBE and/or SDVOB firms respectively. Firms submitted or who participate in the project outside of these conditions and without specific prior approval by the Fund will not be credited toward the Utilization Plan goals for the contract.

If you have questions or need assistance related to the Fund's Minority and Women's Business requirements call the Opportunities Program Unit at (518) 320-1650 or email SUCF.OpportunityAdmin@suny.edu

MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES

“GOOD FAITH EFFORTS”

GUIDELINES

Construction contracts covered by Executive Law Article 15-A

Contractors are required to ensure that good faith efforts are made to include meaningful participation by Minority and Women-Owned Business Enterprises (MWBE) in the Fund’s construction program. Contractors must be diligent and creative in order to develop a plan that complies with the program. If your firm incurs difficulty, these Guidelines will assist in preparing the documentation required to support your efforts. Responses to the information in the Guidelines must be provided to the Fund’s Opportunities Programs Office in an item-by-item format following the numerical sequence as presented. If you need assistance, please contact the office at: (518) 320-1650.

GUIDELINES:

1. Provide a brief statement of any special circumstances which are preventing NYS certified MWBE firms from participating. Include any documentation you deem relevant which may help us in evaluating your efforts.
2. The names of general circulation, trade association, and MWBE-oriented publications in which you solicited certified MWBEs for the purposes of complying with your participation goals related to this contract. Include a list identifying the date(s) that all solicitations for certified MWBE participation were published in any of the above publications.
3. A list of all the searches for certified MWBE firms, obtained by using the NYS MWBE Directory. <https://ny.newnycontracts.com/> that were solicited for purposes of complying with your certified MWBE participation levels. Search lists must include NAICS codes and can include key word searches.
4. Copies of notices, dates of contact, letters, and other correspondence as proof that solicitations were made in writing and copies of such solicitations.
5. Telephone logs with details including date, person(s) communicated with and outcome.
6. Provide copies of responses to your solicitations received by you from certified MWBEs.
7. Provide a description of any contract documents, plans, or specifications made available to certified MWBEs for purposes of soliciting their bids and the date and manner in which these documents were made available.
8. Provide documentation of any negotiations between you and the MWBEs undertaken for purposes of complying with the certified MWBE participation goals.
9. Provide documentation to substantiate quotes that were submitted by NYS certified MWBE firms that were deemed as too high or not cost effective.
10. List efforts made to reasonably structure the scopes of work for purposes of subcontracting with NYS certified MWBEs.
11. Provide a list and include the dates of any pre-bid, pre-award, or other events attended with NYS certified MWBE firms

MWBE UTILIZATION PLAN FORM (UP-1) INSTRUCTIONS

The MWBE Utilization Plan (UP-1) is required to be submitted by the three low bidders within seven (7) calendar days after the bid opening. The ideal Plan should include a mix of MBE and WBE subcontractor and supplier participation. However, if either goal includes more than one third in supplies/material a compelling explanation should be attached. Submission of a Plan which fails to at least meet each goal shall be accompanied by documentation of specific efforts undertaken both pre and post bid. (see “good faith efforts” guidelines)

The Contractor will be required to provide sufficient documentation of the efforts made in the development of the MWBE Plan. The documentation should be responsive to “good faith efforts” guidelines and demonstrate the contractor’s commitment to providing opportunities for MBE and WBE firms in the development of the Plan.

The Fund will review the MWBE Utilization Plan and notify the contractor of any deficiencies and determine necessary actions to bring the Plan into compliance. The firms listed will be contacted for verification of participation. A copy of the approved Plan will be provided to the contractor after issuance of the Fund’s Notice of Award. **Be advised, The Fund does not issue its Notice of Award without an approved MWBE Plan and the Construction Contract may be withheld.**

For assistance with the directory and/or questions regarding the Utilization Plan (UP-1) contact the Opportunities Program Office at (518) 320-1650 or via e-mail:
SUCF.OpportunityAdmin@suny.edu.

Submit Initial Plan to: Robbilee Luedtke, Procurement Assistant
SUCF.ConstructionBids@suny.edu

Submit Plan Modifications to: SUCF.OpportunityAdmin@suny.edu.

MWBE UTILIZATION PLAN FORM (UP-1) INSTRUCTIONS

Only firms holding “current” New York State certification status are acceptable for participation credit.

INITIAL PLAN	Initial Utilization Plan submittal
PLAN MODIFICATION	Update to the Approved Plan
CONTRACT INFORMATION	Project Number, Contract Number, Bid Date, Contract Award Value, MWBE Contract Goals
CONTRACTOR INFORMATION	Company Name, Company Address, Contact Name, Contact Title, Phone, Fax, Email
SUBCONTRACTOR INFORMATION	List the MBE and WBE firms your firm intends to utilize on the project. Include the Company Name, Street Address, Contact Name, and Email Address. Check the appropriate box: MBE <u>or</u> WBE. *Dual certified firms may be used as either but <u>not</u> both within their certification product code. MBE and WBE firms must be certified by the NYS Department of Economic Development, Division of Minority and Women Business Development. The directory of certified Minority and Women-owned Business Enterprises is available on the internet at http://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp.
CONTRACT WITH	Indicate if the participation is via a subcontractor and not direct from prime. Prime contractor is responsible for ensuring participation included in the Plan by subcontractors is executed.
MODIFICATION TYPE (if applicable)	*Prior approval must be obtained from the Fund for decrease in participation or deletion of a firm. A letter of explanation is required on page 2. Supporting documentation of efforts must be submitted to the Fund, with the explanation. ▪ NO CHANGE - for firms on the approved plan with no modifications to report. ▪ ADD – for firms that you are adding to the plan. ▪ DELETE – for firms you are removing from the original approved plan. For any deletions or decreases in subcontract value, an explanation is required on page 2. ▪ UPDATE – for firms whose value is being modified from original utilization plan, decreases to original plan value, an explanation is required on page 2.
FEDERAL I.D. NUMBER	Provide an <u>accurate</u> federal identification number for each MBE / WBE subcontractor or supplier.
DESCRIPTION OF WORK	Provide a brief, but specific description of work to be performed or supplies to be purchased from the MBE or WBE subcontractor or supplier. Check the appropriate box Subcontractor, Supplier, or Broker <u>Construction Supplier</u> - 60% credit: Firms that sell goods out of their revolving inventory. <u>Brokers/Construction Manufacturers’ Representatives</u> – Credit is the monetary value for fees, or the markup percentage, charged by the MWBE. Firms serving as a third-party intermediary between consumers of items and manufacturers, suppliers, or other entities. The services the MBE or WBE will provide must be among those explicitly identified in the firm’s profile (codes) as listed in the NYS MWBE Directory of Certified Firms (https://ny.newnycontracts.com). Firms who participate in the project outside of these conditions <u>will not</u> be credited toward the MWBE Utilization Plan and goals for the contract.
INITIAL PLAN VALUE	Total value of the signed Subcontract
MODIFIED PLAN VALUE	Total value of the revision to the signed Subcontract. Prior approval must be obtained from the Fund for a decrease in participation or deletion of a firm. A letter of explanation is required on page 2. Supporting documentation of efforts must be submitted to the Fund, with the explanation.
SUBCONTRACTOR/SUPPLIER SCHEDULE	The anticipated start and completion dates for each MBE WBE subcontractor or supplier. *Do not include the overall construction schedule for the life of the entire project.
SIGNATURE	Provide the Name, Title and Email address and Signature of a Company Officer.

**OPPORTUNITIES PROGRAM OFFICE
MWBE UTILIZATION PLAN (UP-1)**

SUCF Project No.: _____

☐ Initial Plan ☐ Plan Modification

Contract No.: _____ Bid Date: _____ Contract Award Value (base bid + alternates): _____ Goals: MBE% _____ WBE% _____

Contractor: _____ Address: _____

Contact Name & Title: _____

Phone: _____ Fax: _____ E-mail: _____

Subcontractor Name, Address & E-mail		Check One (if applicable)	Federal ID No.	Description of Work or Supplies	Initial Plan Value	Modified Plan Value*	Subcontractor/Supplier Schedule	
							Start Date	End Date
Company Name:		☐ NO CHANGE						
Street Address:		☐ ADD						
Contact Name:		☐ DELETE						
E-mail address:		☐ UPDATE						
☐ MBE ☐ WBE	Contract with: _____			☐ Subcontractor ☐ Supplier ☐ Broker				
Company Name:		☐ NO CHANGE						
Street Address:		☐ ADD						
Contact Name:		☐ DELETE						
E-mail address:		☐ UPDATE						
☐ MBE ☐ WBE	Contract with: _____			☐ Subcontractor ☐ Supplier ☐ Broker				
Company Name:		☐ NO CHANGE						
Street Address:		☐ ADD						
Contact Name:		☐ DELETE						
E-mail address:		☐ UPDATE						
☐ MBE ☐ WBE	Contract with: _____			☐ Subcontractor ☐ Supplier ☐ Broker				
Company Name:		☐ NO CHANGE						
Street Address:		☐ ADD						
Contact Name:		☐ DELETE						
E-mail address:		☐ UPDATE						
☐ MBE ☐ WBE	Contract with: _____			☐ Subcontractor ☐ Supplier ☐ Broker				

In accordance with the Fund's Contract Documents and Executive Law Article 15-A, my firm intends to utilize the NYS certified MBE/WBE firms listed above for the services and/or supplies indicated on the Plan. I understand the firms listed may be contacted for verification of participation. False representations may result in penalties including but not limited to, withholding of payments and/or termination of this agreement. I understand that I must immediately notify the Opportunities Program Office and request approval prior to any changes to this Plan.

SUCF Project No.: _____ Contract No.: _____ Contractor: _____

*If the Utilization Plan Modification reflects a decrease in value from the original plan or if a firm is substituted, please provide a detailed explanation below and attach supporting documentation.

<u>Subcontractor Name</u>	<u>Certification Type</u>	<u>Explanation</u>
<u>Subcontractor Name</u>	<u>Certification Type</u>	<u>Explanation</u>
<u>Subcontractor Name</u>	<u>Certification Type</u>	<u>Explanation</u>
<u>Subcontractor Name</u>	<u>Certification Type</u>	<u>Explanation</u>

In accordance with the Fund's Contract Documents and Executive Law Article 15-A, my firm intends to utilize the NYS certified MBE/WBE firms listed above for the services and/or supplies indicated on the Plan. I understand the firms listed may be contacted for verification of participation. False representations may result in penalties including but not limited to, withholding of payments and/or termination of this agreement. I understand that I must immediately notify the Opportunities Program Office and request approval prior to any changes to this Plan.

Print Name & Title _____ Company Officer's Signature _____ Director, Opportunities Program _____ Date _____
E-mail _____ Date _____ (UP-1) APR 2019

MWBE and SDVOB BUSINESS REQUIREMENTS FOR PROSPECTIVE BIDDERS

Consistent with the Fund's commitment and in accordance with Article 15-A and Article 17-B of the New York State Executive Law, contractors are required to ensure that good faith efforts are made to include meaningful participation by Minority and Women-Owned Businesses (MWBE) and Service Disabled Veteran-owned Businesses (SDVOB) in the Fund's construction program. The requirements apply to all Fund contracts in excess of \$100,000. The intent of the program is to encourage and assist in developing business relationships between prime contractors, MWBE and SDVOB subcontractors and suppliers. Contractors must be diligent and creative in order to develop a plan that complies with the program.

Receipt of the MWBE and SDVOB Utilization Plan is required within seven (7) calendar days after the bid opening. The MWBE and SDVOB firms listed on the Plan (s) are businesses the bidder intends to utilize on the project and are subject to verification by the Fund.

For many projects, it may be necessary to solicit the cooperation of principal subcontractors to assist in developing a meaningful utilization plan. In order for good faith efforts to be effective, contractors should begin plan development during pre-bid. A matter of special consequence is the Fund's contract requirement that principal subcontractors are nominated within 48 hours of the bid opening therefore, in the selection of principal subcontractors, the prime contractor should consider subcontractors who demonstrate efforts to assist with program requirements.

Consequently, we recommend that the prime contractor evaluate the level of MWBE and SDVOB participation and the good faith efforts to be provided by their principal subcontractors. Although ultimate responsibility for program compliance is with the prime contractor, the Contract Documents require that all subcontractors also comply with the contract provisions. **An inability to meet the contractual goals when subcontractor cooperation is not present, does not excuse the prime contractor from the responsibility.**

MWBE firms must be currently certified by New York State Department of Economic Development Corp. (ESDC) as a Minority or Women-Owned Business to comply with the program requirements. Certified firms are included in the Directory of Certified Minority and Women-Owned Business Enterprises. The Directory is available on the Internet at <https://ny.newnycontracts.com/>. It is the responsibility of the contractor to ensure firms are included in the Directory at the time of submission.

SDVOB firms must be certified by the Office of General Services, Division of Service-Disabled Veterans' Business Development to comply with the program requirements. Certified firms are included in a Directory of New York State Certified Service-Disabled Veteran-Owned Businesses. The Directory is available on the Internet at <https://online.ogs.ny.gov/SDVOB/search>

MWBE and SDVOB goals are separate and cannot be substituted one for the other. However, firms that hold both MWBE and SDVOB certifications may be included in both the MWBE and SDVOB Utilization Plans toward satisfaction of both goals.

The actual services provided by the MWBE and SDVOB firms must be essential in the performance of the scope of work for the applicable contract. **Utilization of a certified MWBE OR SDVOB firm as a conduit or pass through for participation credit is strictly prohibited.** It is the discretion of the Fund to determine whether services are essential in the performance of the scope of work and/or the appropriateness of work allowed for lower tier subcontracting in accordance with practices generally accepted in the construction industry. The services the MWBE and/or SDVOB firm will provide must be among those explicitly identified in the profile (codes) of firms as listed in the NYS Directory of MWBE and/or SDVOB firms respectively. Firms submitted or who participate in the project outside of these conditions and without specific prior approval by the Fund will not be credited toward the Utilization Plan goals for the contract.

If you have questions or need assistance related to the Fund's Minority and Women's Business requirements call the Opportunities Program Unit at (518) 320-1650 or email SUCF.OpportunityAdmin@suny.edu

SDVOB UTILIZATION PLAN FORM INSTRUCTIONS

The SDVOB Utilization Plan is required to be submitted by the three low bidders within seven (7) calendar days after the bid opening. Submission of a Plan which fails to at least meet each goal shall be accompanied by documentation of specific efforts undertaken both pre and post bid. (See “good faith efforts” guideline)

The Contractor will be required the contractor to provide sufficient documentation of the efforts made in the development of the SDVOB Plan. The documentation should be responsive to “good faith efforts” guidelines and demonstrate the contractor’s commitment to providing opportunities to SDVOB firms in the development of the Plan.

The Fund will review the SDVOB Utilization Plan and notify the contractor of any deficiencies and determine necessary actions to bring the Plan into compliance. The firms listed will be contacted for verification of participation. A copy of the approved Plan will be provided to the contractor after issuance of the Fund’s Notice of Award.

For assistance with the directory and/or questions regarding the SDVOB Utilization Plan contact the Opportunities Program Office at (518) 320-1650 or via e-mail:

SUCF.OpportunityAdmin@suny.edu.

Submit Initial Plan to: Robbilee Luedtke, Procurement Assistant

SUCF.ConstructionBids@suny.edu

Submit Plan Modifications to: SUCF.OpportunityAdmin@suny.edu.

OPPORTUNITIES PROGRAM OFFICE SDVOB UTILIZATION PLAN

SUCF Project No.: _____

☐ Initial Plan ☐ Plan Modification

SDVOB Goal % _____

Contract No.: _____ Contract Award Value (base bid + alternates): _____ Bid Date: _____

Are you a NYS Certified SDVOB?
☐ Yes ☐ No

Contractor: _____ Federal I.D. _____

Address: _____ Contact Name & Title: _____ DSDVBD Control# _____

Phone: _____ Fax: _____ E-mail: _____

Subcontractor Name, Address & E-mail		Check One (if applicable)	Federal ID No.	Description of Work or Supplies	Initial Plan Value	Modified Plan Value*	Subcontractor/Supplier Schedule	
		☐ NO CHANGE ☐ ADD ☐ DELETE ☐ UPDATE					Start Date	End Date
Company Name:								
Street Address:								
Contact Name:								
E-mail address:								
Contract with:								
Company Name:		☐ NO CHANGE ☐ ADD ☐ DELETE ☐ UPDATE						
Street Address:								
Contact Name:								
E-mail address:								
Contract with:								
Company Name:		☐ NO CHANGE ☐ ADD ☐ DELETE ☐ UPDATE						
Street Address:								
Contact Name:								
E-mail address:								
Contract with:								

In accordance with the Fund's Contract Documents and Executive Law Article 17-B, my firm intends to utilize the NYS certified SDVOB firms listed above for the services and/or supplies indicated on the Plan. I understand the firms listed may be contacted for verification of participation. False representations may result in penalties including but not limited to, withholding of payments and/or termination of this agreement. I understand that I must immediately notify the Opportunities Program Office and request approval prior to any changes to this Plan.

Print Name & Title _____ Company Officer's Signature _____ Date _____

Director, Opportunities Program

Date _____



SUCF Project No.: _____ Contract No.: _____ Contractor: _____

If the Utilization Plan Modification reflects a decrease in value from the original plan or if a firm is substituted, please provide a detailed explanation below and attach supporting documentation.

<u>Subcontractor Name</u>	<u>Explanation</u>
<u>Subcontractor Name</u>	<u>Explanation</u>
<u>Subcontractor Name</u>	<u>Explanation</u>
<u>Subcontractor Name</u>	<u>Explanation</u>

In accordance with the Fund's Contract Documents and Executive Law Article 17-B, my firm intends to utilize the NYS certified SDVOB firms listed above for the services and/or supplies indicated on the Plan. I understand the firms listed may be contacted for verification of participation. False representations may result in penalties including but not limited to, withholding of payments and/or termination of this agreement. I understand that I must immediately notify the Opportunities Program Office and request approval prior to any changes to this Plan.

SDVOB UTILIZATION PLAN FORM INSTRUCTIONS

Only firms holding “current” New York State certification status are acceptable for participation credit

INITIAL PLAN	Initial Utilization Plan submittal
PLAN MODIFICATION	Update to the Approved Plan
CONTRACT INFORMATION	Project Number, Contract Number, Contract Award Value, Bid Date, SDVOB Contract Goal
CONTRACTOR INFORMATION	Company Name, Federal I.D., Address, Contact Name/Title, Phone, Fax, Email
SUBCONTRACTOR INFORMATION	List the SDVOB firms your firm intends to utilize on the project. Include the Company Name, Street Address, Contact Name, and Email Address. SDVOB firms must be certified by the Office of General Services, Division of Service-Disabled Veterans’ Business Development to comply with the program requirements. Certified firms are included in a Directory of New York State Certified Service-Disabled Veteran-Owned Businesses. The Directory is available on the Internet at https://online.ogs.ny.gov/SDVOB/search
CONTRACT WITH	Indicate if the participation is via a subcontractor and not direct from prime. Prime contractor is responsible for ensuring participation included in the Plan by subcontractors is executed.
MODIFICATION TYPE (if applicable)	*Prior approval must be obtained from the Fund for decrease in participation or deletion of a firm. A letter of explanation is required on page 2. Supporting documentation of efforts must be submitted to the Fund, with the explanation. ▪ NO CHANGE - for firms on the approved plan with no modifications to report. ▪ ADD – for firms that you are adding to the plan. ▪ DELETE – for firms you are removing from the original approved plan. For any deletions or decreases in subcontract value, an explanation is required on page 2. ▪ UPDATE – for firms whose value is being modified from original utilization plan, decreases to original plan value, an explanation is required on page 2.
FEDERAL I.D. NUMBER	Provide an <u>accurate</u> federal identification number for each SDVOB subcontractor or supplier.
DESCRIPTION OF WORK	Provide a brief, but specific description of work to be performed or supplies to be purchased from the SDVOB subcontractor or supplier. The utilization of NYS certified Service-Disabled Veteran-owned Business Enterprises for non-commercially use function will not be counted toward goal credit on the utilization plan.
INITIAL PLAN VALUE	Total value of the signed Subcontract
MODIFIED PLAN VALUE	Total value of the revision to the signed Subcontract. Prior approval must be obtained from the Fund for a decrease in participation or deletion of a firm. A letter of explanation is required on page 2. Supporting documentation of efforts must be submitted to the Fund, with the explanation.
SUBCONTRACTOR/SUPPLIER SCHEDULE	The anticipated start and completion dates for each SDVOB subcontractor or supplier. *Do not include the overall construction schedule for the life of the entire project.
SIGNATURE	Provide the Name, Title and Email address and Signature of a Company Officer.

SERVICE-DISABLED VETERANS-OWNED BUSINESSES

“GOOD FAITH EFFORTS” GUIDELINES

Construction contracts covered by Executive Law Article 17-B

Contractors are required to ensure that good faith efforts are made to include meaningful participation by Service-Disabled Veterans-Owned Businesses (SDVOB) in the Fund’s construction program. Contractors must be diligent and creative in order to develop a plan that complies with the program. If your firm incurs difficulty, these Guidelines will assist in preparing the documentation required to support your efforts. Responses to the information in the Guidelines must be provided to the Funds’ Opportunities Programs Office in an item-by-item format following the numerical sequence as presented. If you need assistance, please contact the office at: (518) 320-1650.

GUIDELINES:

1. Provide a brief statement of any special circumstances which are preventing NYS certified SDVOB firms from participating.
2. Provide the names of general circulation, trade association, and SDVOB-oriented publications in which you solicited certified SDVOBs for the purposes of complying with your participation goals related to this contract. Include a list identifying the date(s) that all solicitations for certified SDVOB participation were published in any of the above publications.
3. A list of all certified SDVOBs appearing in the OGS Division of Service-Disabled Veterans' Business Development’s Directory <https://online.ogs.ny.gov/SDVOB/search> that were solicited for purposes of complying with your certified SDVOB participation levels.
4. Copies of notices, dates of contact, letters, and other correspondence as proof that solicitations were made in writing and copies of such solicitations.
5. Telephone logs with details including date, person(s) communicated with and outcome.
6. Provide copies of responses to your solicitations received by you from certified SDVOBs.
7. Provide a description of any contract documents, plans, or specifications made available to certified SDVOBs for purposes of soliciting their bids and the date and manner in which these documents were made available.
8. Provide documentation of any negotiations between you and the SDVOBs undertaken for purposes of complying with the certified SDVOB participation goals.
9. Provide documentation to substantiate quotes that were submitted by NYS certified SDVOB firms that were deemed as too high or not cost effective.
10. List efforts made to reasonably structure the scopes of work for purposes of subcontracting with NYS certified SDVOBs.
11. Provide a list and include the dates of any pre-bid, pre-award, or other events attended with NYS certified SDVOB firms.

Section 00 25 13 Pre-Bid Meetings

A pre-bid conference and project walk-through will be held on *22 June 2023* with all Bidders assembled at CMFT Building Lobby. No individual or additional walk-throughs may be performed during the prebid time period. Vehicle parking must comply with campus regulations. Failure to attend a walk-through shall not be the cause for extra payment.

Attached is a copy of the Campus' standard regulations to be followed during walk through.

The pre-bid meeting shall be chaired by the Consultant with the following as the minimum agenda:

1. Confirm that bidders have a full bid package including any addenda issued to date.
Please be advised of new standard documents:
 - a. For projects bidding after February 7, 2020, see the Agreement dated February 2020 and review it in its entirety.
 - b. See Section 01 74 19 Construction Waste Management has been added at the request of the SUNY Sustainability Coalition. Please review the section and consider how to meet its goal for recycling at least 50% of the construction and demolition waste generated by this contract. (Hold questions on scope until item 5 below)
 - c. See Section 11 of 00 21 13 20 Information for Bidders for participation by MBEs and WBEs. The MBE/WBE participation goals for this project are:
 - 12 percent for MBE participation
 - 8 percent for WBE participation
 - d. See Section 12 of the Information for Bidders for participation by Service-Disabled Veteran-Owned Businesses. The SDVOB goal for this project is 3%
2. Review the timetable for submitting questions and issuing addenda.
3. Confirm the bid date and time.
4. Advise bidders that no changes to the Contract Documents are binding unless included in an addendum.
5. Review the project scope and schedule. Describe the main concepts of the project.

- a. Review the list of sole/single source products listed in General Requirements Section 01 26 43 Amendments (if any) and remind bidders that all costs for these products are covered by the base bid and no equivalents will be permitted.
6. Describe and discuss any Campus restrictions regarding security, access, worker prerequisites for entry to Campus, parking, and/or other restrictions that create cost and time difficulties related to this project.
7. Refer the bidders to the 00 21 13 20 Contractors Bid and Post Bid Checklist.
 - a. Review the specific Qualifications for Bidders and the nominated subcontractors as written in the Information for Bidders with the attendees.
 - b. Note that that Sections 7 Qualification of Bidders, 8 Submission of Post Bid Information and 10 Required Bonds in 00 21 13 20 Information for Bidders have been changed.
 - c. Note that all insurance must be provided by companies approved by the Fund, licensed to do business in the State of New York (“admitted” carriers), and rated at least “A-” by A.M. Best Company. Excess line insurers are not acceptable. Bidders and Asbestos subs must consult their insurance company/agent prior to bidding.
 - i. To clarify how to confirm if a bidder’s insurer is licensed to do business in the State of New York (“admitted” carriers), bidders and their insurance agents should search for their insurance companies at the following website: <https://www.dfs.ny.gov/insurance/tocol4.htm> . To search, select the link titled: “Insurance Company Search”.
 - ii. Excess line insurers are not acceptable and these firms are listed at this website: <http://www.elany.org/nyes.aspx?d=1002> .
 - d. If the Fund issues a Notice of Award and the bidder doesn’t provide acceptable insurance, then the Fund may rescind the award and take other actions to which it is entitled. All resulting costs and time delay are solely the responsibility of the bidder.
8. Note the change lowering the dollar threshold for named subcontractors back to \$20,000.
9. Have a question and answer session.
10. Tour the site and existing conditions.

NAME OF BIDDER

ADDRESS OF BIDDER

00 42 13 **PROPOSAL FOR SUCF PROJECT NO. 291036-01**

Renovations to Relocate Admissions for Rehab of Administration Bldg – Phase 1A

State University College at Purchase

TO THE STATE UNIVERSITY CONSTRUCTION FUND:

1. The Bidder agrees that it shall complete all work necessary for substantial completion by **340** calendar days from receipt of the Notice to Proceed.

In the event the bidder fails to complete such work by said date, or within the time to which such completion may have been extended in accordance with the Contract Documents, the bidder agrees to pay the Fund liquidated damages in the sum of **\$1,100** for each calendar day of delay in completing the work.

2. The bidder hereby declares that it has carefully examined all Bidding and Contract Documents and that it has inspected the actual location of the work, together with the local sources of supply, has satisfied itself as to all the quantities and conditions, and understands that in signing this Proposal, it waives all right to plead any misunderstanding regarding the same.
3. The bidder further understands and agrees that it is to do, perform and complete all work in accordance with the Contract Documents and to accept in full compensation therefor the amount of the TOTAL BID, modified by such additive or deductive alternates, if any, as are accepted by the Fund.
4. The bidder further agrees to accept the unit prices, if any, set forth in paragraph (5) hereof, except as the same may be modified pursuant to the provisions of Section 5 of the Information to Bidders, as full payment for any deletions, additions, modifications or changes to the portion or portions of work covered by said unit prices.

5. a. **BID CALCULATION:**

- (1) All work including Allowances (if any) listed in 5.d. below and excluding Field Order Allowance

_____	\$ _____
(In words)	(In figures)

- (2) Field Order Allowance: Schedule III and Section 4.05A of the Agreement

_____	\$ 165,000
(In words)	(In figures)

- (3) TOTAL BID Add lines (1) and (2)

_____	\$ _____
(In words)	(In figures)

- b. **ALTERNATES:** Refer to 01 23 00 Alternates (Section B) of the General Requirements. The bidder proposes the following Additions to or Deductions from the TOTAL BID for the alternatives listed below:

<u>Alternate Number</u>	<u>Add/ Deduct</u>	<u>Amount In Words</u>	<u>Amount In Figures</u>
NONE			

- c. **UNIT PRICES:** The bidder or the Fund may insert unit prices for the work or materials listed below. Refer to Section 5, paragraph (2) of the Information to Bidders, Schedule 1 and Article IV Section 4.04 of the Agreement for clarification. Such unit prices apply solely for additions. The Fund may, however, adjust any unit price filled in by a bidder to an amount agreeable to both the bidder and the Fund, or it may reject any unit price. The amount of any unit price accepted or agreed to by the Fund shall be reduced by 15 percent for any deduction in the work or materials covered by such unit price.

<u>Work or Materials Description</u>	<u>Amount in Words</u>	<u>Amount in Figures</u>
NONE		

- d. **ALLOWANCES:** The bidder further agrees that its TOTAL BID includes the Allowance(s) listed below. Refer to Schedule II and Sections 4.04 and 4.05 of the Agreement for clarification:

<u>Work or Materials Description</u>	<u>Amount in Words</u>	<u>Amount in Figures</u>
NONE		

6. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of his or her knowledge and belief: (a) the prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; (b) unless otherwise required by law, the prices have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and (c) no attempt has been made or will be made by the bidder to induce any person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

A bid shall not be considered for award nor shall any award be made where (a), (b) and (c) above have not been complied with; provided, however, that if in any case the bidder cannot make the foregoing certification the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefor. Where (a), (b), and (c) above shall have not been complied with, the bid shall not be considered for award nor shall any award be made unless the General Manager of the Fund, or his designee, determines that such disclosure was not made for purposes of restricting competition.

The fact that a bidder (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning of this Section.

7. The bidder agrees that if awarded the Contract, it will commence work upon receipt of the Notice to Proceed and that it will fully complete the work by the date stated or within the duration herein, as applicable.
8. The bidder acknowledges the receipt of the following addenda, but agrees that it is bound by all addenda whether or not listed herein.

<u>Addendum Number</u>	<u>Date</u>	<u>Addendum Number</u>	<u>Date</u>
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____

9. The Omnibus Procurement Act of 1992, as amended, requires that, by signing this Proposal, the bidder certifies that whenever its Total Bid amount is greater than \$1,000,000: (a) it has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and subcontractors on this Project, and has retained the documentation of these efforts to be provided upon request to the State; (b) it has complied with the Federal Equal Opportunity Act of 1972 (P.L. 92-261), as amended; (c) it 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 Community Services 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 bidder further agrees to document these efforts and to provide said documentation to the State and the Fund upon request, and agrees to cooperate with the State in these efforts. Documented efforts by a successful bidder shall consist of and be limited to showing that such bidder has:

- a. Solicited bids, in a timely and adequate manner, from New York State Business Enterprises including certified Minority and Women's owned Business Enterprises, or
- b. Contacted the New York State Department of Economic Development to obtain listings of New York State Business Enterprises, or
- c. Placed notices for subcontractors and suppliers in newspapers, journals and other trade publications distributed in New York State, or
- d. Participated in bidder outreach conferences.
- e. If the bidder determines that New York State Business Enterprises are not available to participate on the Contract as subcontractors or suppliers, the bidder shall provide a statement indicating the method by which such determination was made.
- f. If the bidder does not intend to use subcontractors on the Contract, the bidder shall provide a statement verifying such intent.

10. The bidder submits herewith bid security in an amount not less than five (5) percent of the Total Bid. In the event that

(a) the bidder's Total Bid is the lowest one submitted and the bidder does not timely provide the Post-Bid Information required under Section 8 of the Information for Bidders; or

(b) this Proposal is accepted by the Fund and the bidder shall refuse or neglect, within ten (10) working days after date of receipt of Notice of Award to:

- (1) execute and deliver an Agreement in the form provided herein; or
- (2) execute and deliver a Performance Bond and a Labor and Material Bond in the amounts required and in the form prescribed; or
- (3) provide proof of insurances required in Article V of the Agreement; or
- (4) provide the 120-day Schedule required by the General Requirements, Special Conditions paragraph 01 32 16, titled "Project Schedule;"

then the bidder shall be liable to the Fund, as liquidated damages, for the amount of the bid security or the difference between the Total Bid of the bidder and the Total Bid of the bidder submitting the next lowest bid, whichever sum shall be higher, otherwise the total amount of the bid security will be returned to the bidder in accordance with the provisions set forth in the Information for Bidders.

The Fund may apply the bid security in full or partial payments, as the case may be, of said liquidated damages and in the event the bid security is less than the amount of liquidated damages to which the Fund is entitled, the bidder shall pay the difference, upon demand, to the Fund.

11. The bidder certifies that all wood products that are to be used in the performance of this Contract shall be in accordance with the Specifications and provisions of Section 167 b. of the State Finance Law which Section prohibits the purchase and use of tropical hardwoods.
12. The bidder affirms that it understands and agrees to comply with the procedures of the Fund relative to permissible contacts as required by Sections 139-j(3) and 139-j-(6)(b) of the State Finance Law.
13. The bidder certifies that all information provided or to be provided to the Fund in connection with this procurement is, as required by Section 139-k of the State Finance Law, complete, true and accurate.

Dated _____
(Legal name of person, partnership, joint venture, corporation, or LLC)

(If corporation, affix corporate seal) By _____
(Signature)
Title _____

Firm's Federal ID Number or Social Security Number as applicable _____

Firm's NYS SFS Vendor Identification Number _____

Check: Is Firm NYS-Certified* MBE? ☐ Yes WBE? ☐ Yes

*(*Defined as independent business concerns which are at least 51% owned and controlled by minority group members or women (citizens of the United States or permanent resident aliens who are Black, Hispanic, Asian or American Indian), whose ownerships in the concerns are real, substantial and continuing and who have and exercise the authority to independently control the decisions of the concerns)*

ATTENTION BIDDERS: ALSO FULLY EXECUTE PAGES P-5, P-6, P-7, P-8, P-9, P-10, AND P-11.

THE POST OFFICE ADDRESS OF THE BIDDER

Telephone No. _____ Email Address _____

If a Corporation

Name	Address
_____, PRESIDENT	_____
_____, SECRETARY	_____
_____, TREASURER	_____

If a Partnership

Name of Partners	Address
_____	_____
_____	_____
_____	_____

If a Joint Venture

Name of Members	Address
_____	_____
_____	_____
_____	_____

If an Individual

Name of Individual	Address
_____	_____

If a Limited Liability Corporation

Name	Address
_____	_____
_____	_____
_____	_____

STATE UNIVERSITY CONSTRUCTION FUND
H. Carl McCall SUNY Building 353 Broadway • Albany, New York 12246
Offerer Disclosure of Prior Non-Responsibility Determinations

Name of Individual or Entity Seeking to Enter into the Procurement Contract:

Address:

Name and Title of Person Submitting this Form:

SUCF Project Number: 291036-01

Date: _____

1. Has any Governmental Entity made a finding of non-responsibility regarding the individual or entity seeking to enter into the Procurement Contract in the previous four years? ☐ No ☐ Yes

If yes, please answer the next questions:

2. Was the basis for the finding of non-responsibility due to a violation of State Finance Law Section 139-j: ☐ No ☐ Yes

3. Was the basis for the finding of non-responsibility due to the intentional provision of false or incomplete information to a Governmental Entity? ☐ No ☐ Yes

4. If you answered "yes" to any of the above questions, please provide details regarding the finding of non-responsibility below.

Governmental Entity: _____

Date of Finding of Non-Responsibility: _____

Basis of Finding of Non-Responsibility: _____

(Add additional pages as necessary)

5. Has any Governmental Entity or other governmental agency terminated or withheld a Procurement Contract with the above-named individual or entity due to the intentional provision of false or incomplete information? ☐ No ☐ Yes

6. If yes, please provide details below.

Governmental Entity: _____

Date of Termination or Withholding of Contract: _____

Basis of Termination or Withholding: _____

(Add additional pages as necessary)

Offerer certifies that all information provided to SUCF with respect to State Finance Law Section 139-k is complete, true and accurate. Submit form with original signature with Proposal.

By: _____
Signature

Date

Certification Regarding Sexual Harassment Prevention Policies Pursuant to State Finance Law §139-l

Dec 2018

ENCOURAGING USE OF NEW YORK STATE BUSINESSES IN CONTRACT PERFORMANCE

New York State businesses have a substantial presence in State contracts and strongly contribute to the economies of the state and the nation. In recognition of their economic activity and leadership in doing business in New York State, bidders/proposers for this contract for commodities, services or technology are strongly encouraged and expected to consider New York State businesses in the fulfillment of the requirements of the contract. Such partnering may be as subcontractors, suppliers, protégés or other supporting roles.

Bidders/proposers need to be aware that all authorized users of this contract will be strongly encouraged, to the maximum extent practical and consistent with legal requirements, to use responsible and responsive New York State businesses in purchasing commodities that are of equal quality and functionality and in utilizing services and technology. Furthermore, bidders/proposers are reminded that they must continue to utilize small, minority and women-owned businesses, consistent with current State law.

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 New York State business partners. New York State businesses will promote the contractor's optimal performance under the contract, thereby fully benefiting the 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 expects bidders/proposers to provide maximum assistance to New York businesses in their use of the contract. The potential participation by all kinds of New York businesses will deliver great value to the State and its taxpayers.

Bidders/proposers can demonstrate their commitment to the use of New York State businesses by responding to the question below:

Will New York State Businesses be used in the performance of this contract? ☐ Yes ☐ No

SUCF Project Number: _____

If yes, identify New York State Business(es) that will be used; (list identifying information below).

(Attach additional identifying information with the bid as required)

By: _____ Date: _____
Signature

Print Name and Title: _____

Contractor Name: _____

Contractor Address: _____

EO 177 Certification

The New York State Human Rights Law, Article 15 of the Executive Law, prohibits discrimination and harassment based on age, race, creed, color, national origin, sex, pregnancy or pregnancy-related conditions, sexual orientation, gender identity, disability, marital status, familial status, domestic violence victim status, prior arrest or conviction record, military status or predisposing genetic characteristics.

The Human Rights Law may also require reasonable accommodation for persons with disabilities and pregnancy-related conditions. A reasonable accommodation is an adjustment to a job or work environment that enables a person with a disability to perform the essential functions of a job in a reasonable manner. The Human Rights Law may also require reasonable accommodation in employment on the basis of Sabbath observance or religious practices.

Generally, the Human Rights Law applies to:

- all employers of four or more people, employment agencies, labor organizations and apprenticeship training programs in all instances of discrimination or harassment;
- employers with fewer than four employees in all cases involving sexual harassment; and,
- any employer of domestic workers in cases involving sexual harassment or harassment based on gender, race, religion or national origin.

In accordance with Executive Order No. 177, the Bidder hereby certifies that it does not have institutional policies or practices that fail to address the harassment and discrimination of individuals on the basis of their age, race, creed, color, national origin, sex, sexual orientation, gender identity, disability, marital status, military status, or other protected status under the Human Rights Law.

Executive Order No. 177 and this certification do not affect institutional policies or practices that are protected by existing law, including but not limited to the First Amendment of the United States Constitution, Article 1, Section 3 of the New York State Constitution, and Section 296(11) of the New York State Human Rights Law.

Contractor Name: _____

By: _____ Date: _____
Signature

Print Name and Title: _____

Bidder Name:**SUCF Project No.: 291036-01**

Bidders must provide three (3) example projects completed in the past five (5) years in which the Bidder served as the prime contractor. Example projects must be of similar size, scope and complexity to the project currently being bid, as further described in the General Requirements, Section 01 11 00, Description of Work. Each project must include the Owner/Agency, Award Date, Contract Amount, Date Completed, Contact Person, Telephone number of the contact, Architect and/or Engineer's Name, Contract Number, Contact Email, and the Project Title and a brief scope description. Reference contacts may be used to verify project size, scope, dollar value, percentages and quality of performance.					
1.	Agency/Owner	Award Date		Contract Amount	Date Completed
	Agency/Owner Contact Person	Telephone No.	Designer Architect and /or Design Engineer		
	Contract No.	Contact Email	Project Title & Scope		
2.	Agency/Owner	Award Date		Contract Amount	Date Completed
	Agency/Owner Contact Person	Telephone No.	Designer Architect and /or Design Engineer		
	Contract No.	Contact Email	Project Title & Scope		
3.	Agency/Owner	Award Date		Contract Amount	Date Completed
	Agency/Owner Contact Person	Telephone No.	Designer Architect and /or Design Engineer		
	Contract No.	Contact Email	Project Title & Scope		
Completed By:		Phone Number: Email: Date:			

APPENDIX A

For SUCF Project No. 291036-01

BID BREAKDOWN

In the spaces provided below, insert the bid amounts for the various divisions listed.

<u>DIVISION OR SECTION</u>	<u>AMOUNT</u>
1. Division 2 - Demolition	\$ _____
2. Division 3 - Concrete	\$ _____
3. Division 4 - Masonry	\$ _____
4. Division 5 - Metals	\$ _____
5. Division 6 - Wood and Plastics	\$ _____
6. Division 7 - Thermal & Moisture Protection	\$ _____
7. Division 8 - Openings	\$ _____
8. Division 9 - Finishes	\$ _____
9. Division 10 - Specialties	\$ _____
10. Division 12 - Furnishings	\$ _____
11. Division 21 - Fire Protection	\$ _____
12. Division 22 - Plumbing	\$ _____
13. Division 23 - HVAC	\$ _____
14. Division 26 - Electrical	\$ _____
15. Sum of all lines above (Base Bid)	\$ _____
16. Field Order Allowance	\$ 165,000
Total Bid	\$ _____

1. This breakdown is not the basis for Contractor payment (Agreement Section 4.08).
2. The Total above should equal the amount in the Contractor's bid Proposal.

Note: Please indicate whether you believe that any information supplied herein is confidential and should be exempt from disclosure under the Freedom of Information Law.

☐ Yes

☐ No

If "yes", you must identify the information you feel is confidential by placing an asterisk () in front of the appropriate number(s) and you are requested to attach an additional sheet(s) upon which the basis for such claim(s) is explained.*

Name of Contractor

BID BOND

BOND NO. _____

KNOW ALL PERSONS BY THESE PRESENTS, that

, having an office at

(hereinafter called the "Principal") and the

a corporation created and existing under the laws of
the State of _____,
having its principal office at

(hereinafter called the "Surety") are held and firmly
bound unto the State University Construction Fund
(hereinafter called the "Fund") in the full and just sum
of

_____ dollars (\$ _____)
good and lawful money of the United States of
America, or in the full and just sum of the difference
between the Total Bid of the Principal and the Total Bid
of the bidder submitting the next lowest bid, whichever
sum shall be higher, for the payment of which said sum
of money, well and truly to be made and done, the
Principal binds itself, its heirs, executors,
administrators, successors and assigns and the Surety
binds itself, its successors and assigns, jointly and
severally, firmly by these presents.

WHEREAS, the Principal has submitted to the Fund a
Proposal for

which Proposal is incorporated herein by reference and
made a part hereof as fully and to the same extent as
if set forth at length herein;

NOW, THEREFORE, the condition of this obligation is
such that in the event (1) the Principal's Total Bid is the
lowest one submitted and the Principal timely provides
the Post-Bid Information required under Sections 7 and
8 of the Information for Bidders or (2) the Fund shall
accept the Proposal of the Principal and the Principal
shall enter into a Contract with the Fund in accordance
with the terms of such Proposal and/or enter into
certain prescribed subcontracts in accordance with the
terms of such Proposal and give such Bond or Bonds,
proof of insurances, and 120-day Schedule as may be
specified in the Bidding or Contract Documents, then

this obligation shall be null and void, otherwise to
remain in full force and effect.

The Surety, for value received, hereby stipulates and
agrees that the obligation of said Surety and its Bond
shall be in no way impaired or affected by any
extension of the time within which the Fund may accept
the Proposal of the Principal and said Surety does
hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal has hereunto
set its hand and seal and the Surety has caused this
instrument to be signed by its

and its corporate seal to be hereunto affixed this
day of _____ 20____.

Principal

By

(If Corporation, affix corporate seal)

Surety

By

(If Corporation, affix corporate seal)

ACKNOWLEDGMENTS

(ACKNOWLEDGMENT BY PRINCIPAL, UNLESS IT BE A CORPORATION)

STATE OF)
) ss.:
COUNTY OF)

On this _____ day of _____, 20____, before me personally came

_____, to me known and known to me to be the person(s) described in and who executed the foregoing instrument and acknowledged that he executed the same.

Notary Public

(ACKNOWLEDGEMENT BY CORPORATION)

STATE OF NEW YORK)
COUNTY OF) SS:

On this _____ day of _____, 20____, before me personally came

_____, to me known, who, being by me duly sworn, did depose and say that he/she/they reside(s) in _____; that he/she/they is (are) the _____ (president or other officer or director or attorney in fact duly appointed) of the _____ (name of corporation), the corporation described in and which executed the above instrument; and that he/she/they signed his/her/their name(s) thereto by authority of the board of directors of said corporation.

Notary Public

;

(ACKNOWLEDGMENT BY SURETY COMPANY)

STATE OF)
) ss.:
COUNTY OF)

On this _____ day of _____, 20____, before me personally came

_____, to me known who, being by me

duly sworn, did depose and say that he resides in _____;

that he is the _____ of the

_____, the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation and that he signed his name thereto by like order; and that the liabilities of said company do not exceed its assets as ascertained in the manner provided by the laws of the State of New York.

Notary Public

00 43 13 10 INSTRUCTIONS FOR EXECUTION OF BID BOND

NOTE: All instructions are numbered in the sequence that they appear on the following Bid Bond sample:

1. Name of Principal.
- 1a. Address of Principal.
2. Surety name, address (*Note: Must be authorized to do business in NYS as surety*).
3. Surety's State of incorporation.
4. Surety's principal office.
5. Amount of bid security (*in words and figures* **OR** "5% of amount of bid").
6. Correct project designation, including SUCF Project No.
7. "Attorney-in-Fact" (*or other authorized representative*) of Surety.
8. Execution date of Bond.
9. Name of Principal.
10. Original signature of Principal's officer (if corporation); partner (if partnership); or individual owner (facsimile or stamped signature not acceptable). *Note: If Principal's signatory is not a corporate officer, such other authorized representative's capacity to execute the Bond on behalf of Principal must be shown by a duly executed document reflecting the grant of such authority, e.g. by a copy of the appropriate Resolution of the Board of Directors of Principal).*
11. Corporate seal of Principal (if a corporation).
12. Name of Surety.
13. Original signature of Surety's Attorney-in-Fact (or other authorized representative). *Note: Facsimile or stamped signature not acceptable.*
14. Corporate seal of Surety. *Note: If the Bond is executed by joint venture, each member of the joint venture must affix its appropriate name, signature, seal, etc., as listed above. Changes, additions, or deletions in the text of the Fund's Bond form are not acceptable.*

The Bond must also have attached to it: (1) Surety Company's Power of Attorney (naming attorney executing Bond); (2) Surety's Certificate (date to be on or after date of Bond execution); (3) Surety's current Financial Statement (no more than two years old).

Note: On the Surety's Financial Statement, "surplus to policy holders" must be in an amount at least ten (10) times the amount of the bid security (Item "5" on Page BB-1).

BID BOND

BOND NO. _____

KNOW ALL PERSONS BY THESE PRESENTS, that

-1-

, having an office at

-1a-

(hereinafter called the "Principal") and the

-2-

a corporation created and existing under the laws of the State of **-3-**, having its principal office at

-4-

(hereinafter called the "Surety") are held and firmly bound unto the State University Construction Fund (hereinafter called the "Fund") in the full and just sum of

-5-

dollars (\$)

good and lawful money of the United States of America, or in the full and just sum of the difference between the Total Bid of the Principal and the Total Bid of the bidder submitting the next lowest bid, whichever sum shall be higher, for the payment of which said sum of money, well and truly to be made and done, the Principal binds itself, its heirs, executors, administrators, successors and assigns and the Surety binds itself, its successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted to the Fund a Proposal for

-6-

which Proposal is incorporated herein by reference and made a part hereof as fully and to the same extent as if set forth at length herein;

NOW, THEREFORE, the condition of this obligation is such that in the event (1) the Principal's Total Bid is the lowest one submitted and the Principal timely provides the Post-Bid Information required under Sections 7 and 8 of the Information for Bidders or (2) the Fund shall accept the Proposal of the Principal and the Principal shall enter into a Contract with the Fund in accordance with the terms of such Proposal and/or enter into certain prescribed subcontracts in accordance with the terms of such Proposal and give such Bond or Bonds, proof of insurances, and 120-day Schedule as may be specified in the Bidding or Contract Documents, then

this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety, for value received, hereby stipulates and agrees that the obligation of said Surety and its Bond shall be in no way impaired or affected by any extension of the time within which the Fund may accept the Proposal of the Principal and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal has hereunto set its hand and seal and the Surety has caused this instrument to be signed by its **-7-**

and its corporate seal to be hereunto affixed this day of **-8-** 20 .

-9-

Principal

-10-

By

(If Corporation, affix corporate seal)

-11-

-12-

Surety

-13-

By

(If Corporation, affix corporate seal)

-14-

INSTRUCTIONS FOR EXECUTION OF ACKNOWLEDGMENTS

NOTE: All instructions are numbered in the sequence that they appear on the following Acknowledgment sample:

Acknowledgment by Individual Principal:

1. State where executed.
2. County where executed.
3. Date of execution.
4. Month of execution.
5. Year of execution.
6. Name of Individual Principal.
7. Original signature of Notary before whom Acknowledgment is signed. *NOTE: Facsimile or stamped signature not acceptable.*
8. Attach stamp or seal of Notary, showing (current) date of expiration of commission.

Acknowledgment by Corporate Principal:

1. State where executed.
2. County where executed.
3. Date of execution.
4. Month of execution.
5. Year of execution.
6. Name of Principal's Corporate Officer (or authorized representative).
7. Residence of Principal's Corporate Officer (or authorized representative).
8. Title of Corporate Officer (or authorized representative).
9. Full name of Principal.
10. Original signature of Notary before whom Acknowledgment is signed. *NOTE: Facsimile or stamped signature not acceptable.*
11. Attach stamp or seal of Notary, showing (current) date of expiration of commission.

Acknowledgment By Surety:

1. State where executed.
2. County where executed.
3. Date of execution.
4. Month of execution.
5. Year of execution.
6. Name of Surety's Attorney-in-Fact (or authorized representative).
7. Residence of Surety's Attorney-in-Fact (or authorized representative).
8. "Attorney-in-Fact" (or other authorized representative) of Surety.
9. Full name of Surety.
10. Original signature of Notary before whom Acknowledgment is signed. *NOTE: Facsimile or stamped signature not acceptable.*
11. Attach stamp or seal of Notary showing (current) date of expiration of commission.

NOTE: The date of all Acknowledgments must be on or after the date of execution of the Bond (Item "8" on page BB-1).

ACKNOWLEDGMENTS

(ACKNOWLEDGMENT BY PRINCIPAL, UNLESS IT BE A CORPORATION)

STATE OF -1-
) ss.:
COUNTY OF -2-)

On this -3- day of -4-, 20 -5-, before me personally came -6-,
to me known and known to me to be the person(s) described in and who executed the foregoing instrument and
acknowledged that he executed the same.

-7-

Notary Public

-8-

(ACKNOWLEDGMENT BY PRINCIPAL, IF A CORPORATION)

STATE OF -1-
) ss.:
COUNTY OF -2-)

On this -3- day of -4-, 20 -5-, before me personally came -6-
to me known who, being by me duly sworn, did depose and say that he resides in -7-;

that he is the -8- of the -9-
the corporation described in and which executed the foregoing instrument; that he knows the seal of said
corporation; that the seal affixed to said instrument is such corporate seal; that is was so affixed by order of the Board
of Directors of said corporation and that he signed h name thereto by like order.

-10-

Notary Public

-11-

(ACKNOWLEDGMENT BY SURETY COMPANY)

STATE OF -1-
) ss.:
COUNTY OF -2-)

On this -3- day of -4-, 20 -5-, before me personally came -6-
to me known who, being by me duly sworn, did depose and say that he resides in -7-;

that he is the -8- of the -9-
the corporation described in and which executed the foregoing instrument; that he knows the seal of said
corporation; that the seal affixed to said instrument is such corporate seal; that is was so affixed by order of the Board
of Directors of said corporation and that he signed h name thereto by like order; and that the liabilities of
said company do not exceed its assets as ascertained in the manner provided by the laws of the State of New York.

-10-

Notary Public

State University Construction Fund AGREEMENT

This Agreement made as of the day of X, 20XX, by and between the State University Construction Fund, whose address is The H. Carl McCall SUNY Building, 353 Broadway, Albany, New York 12246, hereinafter referred to as the "Fund", and

hereinafter referred to as the "Contractor".

WITNESSETH:

The parties hereto agree that the Contractor shall (a) furnish and perform all work of every kind required and all other things necessary to complete in the most substantial and workmanlike manner the construction of

in strict accordance with the Contract Documents;

(b) complete all work necessary for substantial completion by
or within , starting after receipt of the Notice to Proceed,

[INSTRUCTIONS: Identify substantial completion date above utilizing only one method.]

or within the time to which such completion may have been extended in accordance with the Contract Documents; (c) in the event it fails to substantially complete all the work on time, pay to the Fund liquidated damages in the amount of

for each calendar day of delay of substantially completing all the work; and (d) do everything required by the Contract; subject, however, to the terms, provisions and conditions listed hereinafter.

Article I General Provisions

Section 1.01 Definitions

Where the following words and expressions are used in the Contract Documents it is understood that they have the meaning set forth as follows:

Allowance Any and all work and materials which may be required of the Contractor in performing work set forth under one or more allowances to this Contract shall be Work, as defined herein, which shall be performed in accordance with the base schedule for the performance of the Contractor's Work. Contractor shall not be entitled to an extension of time for the performance of an allowance or all allowances.

Consultant The Architect or Engineer named in the Notice to Bidders or such other person or firm designated by the Fund to provide general administration of the Contract and inspection of the work.

Bidding Documents Notice to Bidders, Information for Bidders and Proposals

Bonds Performance Bond and Labor and Material Bond

Delay For purposes of this document and as used herein and in any other contract documents between the Contractor and the Fund the word "delay" shall be interpreted broadly and shall include by way of example only and not by way of limitation: delay, disruption, interference, inefficiencies, impedance, hindrance, acceleration, resequencing, schedule impacts, lack of timeliness by the Fund and/or Consultant, and lack of coordination, cumulative impact of multiple change orders, delay and other impacts.

Contract or Contract The Agreement, Bonds, Specifications, Project Manual, Drawings, Addenda

Documents	issued prior to the opening of bids and Change Orders issued after award of the Contract.
Fund or Owner	State University Construction Fund
Notice of Award	Letter of Intent
Project	The facility or facilities to be constructed including all usual, appropriate and necessary attendant work shown on, described in or mentioned in the Contract.
Site	The area within the Contract limit lines, as shown on the Drawings, and all other areas upon which the Contractor is to perform work.
Substantial Completion	Substantial Completion is the completion of Work so that the Project can be fully occupied and used for the purposes for which it is intended. Substantial Completion includes: (1) completion of all work required for the issuance of a code compliance certificate, or a temporary approval for occupancy, completed in a manner that includes no uncorrected deficiency or material violation of the Building Code of New York State within the area or work for which the certificate is to be issued; (2) completion of all building systems and functional testing of said systems (other than tests that cannot be performed due to the seasonal environmental conditions in effect at the time of completion); (3) acceptance and approval of the Operating Instructions and Manuals and Training of Campus Personnel; and (4) the sum of values determined for Punch List work at the time of Substantial Completion shall not exceed one (1) percent of the amount of the Contract consideration unless otherwise agreed to by the Fund.
Work	The using, performing, installing, furnishing and supplying of all materials, equipment, labor, services and incidentals necessary or proper for or incidental to the successful completion of the Project and the carrying out of all

duties and obligations imposed upon the Contractor by the Contract.

Section 1.02 Captions

The titles or captions of Articles and Sections of the Contract are intended for convenience and reference purposes only and in no way define, limit or describe the scope or intent thereof or of the Contract or in any way affect the Contract.

Section 1.03 Nomenclature

Materials, equipment or other work described in words and abbreviations which have a well-known, technical or trade meaning shall be interpreted as having such meaning in connection with the Contract.

Section 1.04 Entire Agreement

The Contract constitutes the entire agreement between the parties hereto and no statement, promise, condition, understanding, inducement or representation, oral or written, expressed or implied, which is not contained herein shall be binding or valid and the Contract shall not be changed, modified, or altered in any manner except by an instrument in writing executed by the parties hereto.

Section 1.05 Successors and Assigns

The Contract shall bind the successors, assigns and representatives of the parties hereto.

Section 1.06 Accuracy and Completeness of Contract Documents

(1) The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. The intention of the Documents is to include all materials, plant, equipment, tools, skill and labor of every kind necessary for the proper execution of the work and also those things which may be reasonably inferable from the Contract Documents as being necessary to produce the intended results.

(2) The Contract Documents contemplate a finished piece of work of such character and quality as is reasonably inferable from them. The Contractor acknowledges that the Contract consideration includes sufficient money allowance to make its work complete and operational and in compliance with good practice and it agrees that inadvertent minor discrepancies or omissions or the failure to show details or to repeat on any part of the Contract Documents the figures or notes given on another shall

not be the cause for additional charges or claims. In case of a conflict between any part or parts of the Contract Documents with any other part or parts thereof, as contrasted to an omission or failure to show details or to repeat on any part of the Contract Documents the figures or notes given on another part thereof, the following shall be given preference, in the order hereinafter set forth, to determine what work the Contractor is required to perform: (a) Addenda (later dates to take preference over earlier dates); (b) Amendments to Agreement; (c) Agreement; (d) Specifications; (e) Schedules; (f) Large scale detail Drawings (detail drawings having a scale of 3/4" and over); (g) Large scale plan and section Drawings (plan and section drawings having a scale equal to or larger than that used for the basic floor or site plan, as the case may be); (h) Small scale detail Drawings (detail drawings having a scale of less than 3/4"); and (i) Small scale plan and section Drawings (plan and section drawings having a scale less than that used for the basic floor or site plan, as the case may be). In the event of such a conflict between or among parts of the Contract Documents that are entitled to equal preference, the more expensive way of doing the work, the better quality or greater quantity of material shall govern unless the Fund otherwise directs.

Section 1.07 Organization of Contract Documents

The Specifications and Drawings are generally divided into trade sections for the purpose of ready references, but such division is arbitrary and such sections shall not be construed as the prescription by the Consultant or the Fund of the limits of the work of any subcontractor or as a determination of the class of labor or trade necessary for the fabrication, erection, installation or finishing of the work required. The Contractor will be permitted to allot the work of subcontractors at its own discretion regardless of the grouping of the Specifications and Drawings. It shall be the Contractor's responsibility to settle definitively with each subcontractor the portions of the work which the latter will be required to do. The Fund and the Consultant assume no responsibility whatever for any jurisdiction claimed by any of the trades involved in the work.

Section 1.08 Furnishing of Contract Documents

The Fund shall establish the format for the Contract Documents (hard copy and/or electronic media) at the start of the Project. The Contractor shall be furnished, free of charge, with two (2) copies of the Specifications and Drawings in the selected format(s). Any other copies of the Specifications and Drawings which the

Contractor may desire can be obtained at the Contractor's expense.

Section 1.09 Examination of Contract Documents and Site

By executing the Contract, the Contractor agrees that it has carefully examined the Contract Documents together with the site of the proposed work as well as its surrounding territory; that it is fully informed regarding all the conditions affecting the work to be done and the labor and materials to be furnished for the completion of the Contract; and that its information has been acquired by personal investigation and research and not in the estimates and records of the Fund.

Section 1.10 Invalid Provisions

If any term or provision of the Contract Documents or the application thereof to any person, firm or corporation or circumstance shall, to any extent, be invalid or unenforceable, the remainder of the Contract Documents, or the application of such terms or provisions to persons, firms or corporations or circumstances other than those to which it is held invalid or unenforceable, shall not be affected thereby and each term or provision of the Contract Documents shall be valid and be enforced to the fullest extent permitted by law.

Section 1.11 No Collusion or Fraud

The Contractor hereby agrees that the Contract was secured without collusion or fraud and that neither any officer nor any employee of the Fund has or shall have a financial interest in the performance of the Contract or in the supplies, work or business to which it relates, or in any portion of the profits thereof.

Section 1.12 Notices

(1) All notices permitted or required hereunder shall be in writing and shall be transmitted either:

- a. via certified or registered United States mail, return receipt requested;
- b. by personal delivery;
- c. by expedited delivery service; or
- d. by email if actually received by the Fund.
Contractor bears the burden of service by email and receipt of email by the Fund.

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

The State University Construction Fund

Name:

Title: Project Coordinator

The H. Carl McCall SUNY Building

353 Broadway, Albany, NY 12246

Telephone Number:

E-mail address:

Contractor

Company Name:

Designated Contact Name:

Contact Title: Project Manager

Address:

Telephone Number:

E-mail Address:

(2) Any such notice shall be deemed to have been given either at the time of personal delivery or actual receipt by the Fund, or in the case of email, upon receipt by the Fund.

(3) 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 Agreement 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 Agreement. 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.

Section 1.13 Singular-Plural; Male-Female

As used in the Contract Documents, the singular of any word or designation, whenever necessary or appropriate, shall include the plural and vice versa, and the masculine gender shall include the female and neutral genders and vice versa.

Article II

Contract Administration and Conduct

Section 2.01 Consultant's Status

(1) The Consultant, as the Fund's representative, shall provide general administration of the Contract and inspection of the work. The Consultant will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work, and it will not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents. The Consultant's duties, services and

work shall in no way supersede or dilute the Contractor's obligation to perform the work in conformance with all Contract requirements, but it is empowered by the Fund to act on its behalf with respect to the proper execution of the work and to give instructions and/or direction when necessary to require such corrective measures as may be necessary, in its professional opinion, to insure the proper execution of the Contract or to otherwise protect the Fund's interest.

(2) The Consultant shall have the authority to stop the work or to require and/or direct the prompt execution thereof whenever such action may be necessary, in its professional opinion, to insure the proper execution of the Contract or to otherwise protect the interests of the Fund.

(3) Except as otherwise provided in the Contract, the Consultant shall determine the amount, quality, acceptability, fitness and progress of the work covered by the Contract and shall decide all questions of fact which may arise in relation to the interpretation of the plans and Specifications, the performance of the work and the fulfillment by the Contractor of the provisions of the Contract. The Consultant shall in the first instance be the interpreter of the provisions of the Contract and the judge of its performance and it shall use its power under the Contract to enforce its faithful performance.

Section 2.02 Finality of Decisions

(1) Any decision or determination of the Consultant under the provisions of the Contract shall be final, conclusive and binding on the Contractor unless the Contractor shall, within ten (10) working days after such decision, make and deliver to the Fund a verified written statement of its contention that the decision of the Consultant is contrary to a provision of the Contract. The Fund shall thereupon determine the validity of the Contractor's contention. Pending decision by the Fund, the Contractor shall proceed in accordance with the Consultant's decision.

(2) Wherever it is provided in the Contract Documents that an application must be made to the Fund and/or determination made by the Fund, the Fund's decision on such application and/or its determination under the Contract Documents shall be final, conclusive and binding upon the Contractor unless the Contractor, within ten (10) working days after receiving notice of the Fund's decision or determination, files a written statement with the Fund and the Consultant that it reserves its rights in connection with the matters covered by said decision

or determination and after a court of competent jurisdiction determines the Fund's said decision or determination to be fraudulent, capricious, arbitrary or so grossly erroneous as necessarily to imply bad faith, in an action brought in accordance with Section 4.24.

Section 2.03 Claims and Disputes

(1) If the Contractor claims (i) that any work it has been ordered to do is extra work or (ii) that it has performed or is going to perform extra work or (iii) that any action or omission of the Fund or the Consultant is contrary to the terms and provisions of the Contract, it shall:

- a. Promptly comply with such order;
- b. Notwithstanding the provisions of Section 1.12 of the Agreement and any other provisions of the Contract documents to the contrary, file with the Fund and the Consultant, within five (5) working days after being ordered to perform the work claimed by it to be extra work or within five (5) working days after commencing performance of the extra work, whichever date shall be the earlier, or within five (5) working days after the said action or omission on the part of the Fund or the Consultant occurred, a written notice of the basis of its claim and request a determination thereof,
- c. Notwithstanding the provisions of Section 1.12 of the Agreement and any other provisions of the Contract documents to the contrary, file with the Fund and the Consultant, within thirty (30) calendar days after said alleged extra work was required to be performed or said alleged extra work was commenced, whichever date shall be the earlier, or said alleged action or omission by the Fund or the Consultant occurred, a verified detailed statement, with documentary evidence, of the items and basis of its claim, including an initial and updated detailed Time Progress Schedule,
- d. Produce for the Fund's examination, upon notice from the Fund, such information and documentation as directed by the Fund, which shall include but not be limited to job cost reports and all estimates and documentation used to develop the Bid Proposal, all its books of account, bills, invoices, payrolls, subcontracts, time books, progress records, daily reports, bank deposit books, bank statements, checkbooks and cancelled checks, showing all of its actions and transactions in connection with or relating to or arising by reason of its claim, and submit persons in its employment and in its subcontractors'

employment for examination under oath by any person designated by the Fund to investigate any claims made against the Fund under the Contract, such examination to be made at the offices of the Contractor; and

- e. Proceed diligently, pending and subsequent to the determination of the Fund with respect to any such disputed matter, with the performance of the Contract and in accordance with all instructions of the Fund and the Consultant.

(2) The Contractor's failure to comply with any or all parts of subdivision b, c and d of paragraph (1) of this Section shall be deemed to be: (i) a conclusive and binding determination on its part that said order, work, action or omission does not involve extra work and is not contrary to the terms and provisions of the Contract; and (ii) a waiver by the Contractor of all claims for additional compensation or damages as a result of said order, work, action or omission. The provisions of subdivision b, c and d of paragraph (1) of this Section are for the purpose of enabling the Fund to avoid waste of public funds by affording it promptly the opportunity to cancel or revise any order, change its plans, mitigate or remedy the effects or circumstances giving rise to a claim or take such other action as may seem desirable and to verify any claimed expenses or circumstances as they occur. Compliance with such provisions is essential whether or not the Fund is aware of the circumstances of any order or other circumstances which might constitute a basis for a claim and whether or not the Fund has indicated it will consider a claim in connection therewith.

(3) The Contractor's failure to submit and maintain a Time Progress Schedule in accordance with Section 3.02 of the Agreement shall be deemed to be a waiver by the Contractor of all claims for additional time, compensation or damages as a result of any condition which is an alleged cause of delay in the completion of the work. The Schedule of Record, regularly updated and submitted at required durations in accordance with the provisions of the General Requirements, Section paragraph titled "Project Schedule": (i) informs the Fund and affords it promptly of regular opportunities to change its plans or mitigate or remedy the effects or circumstances giving rise to a claim of delay in the completion of the work or take such other action as may seem desirable to verify any claimed circumstances as they occur; and (ii) forms a record which becomes the basis of the Fund's verification of an alleged cause of delay in the completion of the work.

(4) No person has power to waive or modify any of the foregoing provisions and, in any action against the Fund to recover any sum in excess of the sum certified by the Fund to be due under or by reason of the Contract, the Contractor must allege in its complaint and prove at the trial compliance with the provisions of this Section.

(5) Nothing in this Section shall in any way affect the Fund's right to obtain an examination before trial or a discovery and inspection in any action that might be instituted by or against the Fund or the Contractor.

Section 2.04 Omitted Work

The Fund reserves the right at any time during the progress of the work to delete, modify or change the work covered by the Contract, by a Change Order or Field Order thereto providing for either a reduction or omission of any portion of the work, without constituting grounds for any claim by the Contractor for allowances for damages or for loss of anticipated profits and in such event a deduction shall be made from the Contract consideration, the amount of which is to be determined in accordance with the provisions of Section 4.02 or 4.05A of the Agreement.

Section 2.05 Extra Work

(1) The Fund reserves the right at any time during the progress of the work to add, modify or change the work covered by the Contract by Change Order or Field Order or as otherwise required by the Fund thereto providing for extra work of either a qualitative or quantitative nature and in such event the Contract consideration may be increased by an amount to be determined in accordance with the provisions of Sections 4.02 and 4.05A of the Agreement and the completion date for all or any part of the work may be extended for such period of time as may be determined by the Fund as necessary, because of the extra work, to complete the work or any part thereof.

(2) Nothing in the Contract Documents shall excuse the Contractor from proceeding with the extra work as directed. The terms and conditions of the Contract Documents shall be fully applicable to all extra work.

(3) The Contractor shall have no claim for extra work or an extension of time if the performance of such work, in the judgment of the Consultant, is made necessary or desirable because of any act or omission of the Contractor which is not in accordance with the Contract.

(4) Notwithstanding the provisions of Section 2.02 of the Agreement and any other provisions of the Contract Documents to the contrary, an officer of the Fund, after conferring with the Consultant, shall have the right to overrule a determination or decision of the Consultant, that relates to whether certain work is included in the Contract Documents or is extra work, which he or she believes is incorrect; in the event an officer exercises such right, his or her determination or decision shall be final, conclusive and binding upon the Contractor and the Fund unless the same shall be determined by a court of competent jurisdiction to have been fraudulent, capricious, arbitrary or so grossly erroneous as necessarily to imply bad faith.

Section 2.06 Contractor to Give Personal Attention

(1) The Contractor shall give its constant personal attention to all the work while it is in progress and shall place the work in charge of a competent and reliable full-time superintendent acceptable to the Consultant and the Fund who shall have authority to act for the Contractor and who shall be accountable to the Consultant to the extent provided in the Contract. Unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in its employ, such superintendent shall not be changed without the written permission of the Consultant and the Fund.

(2) When the Contractor and its superintendent are temporarily absent from the site of the work, the Contractor or its superintendent shall designate a responsible supervisory employee, approved by the Consultant and the Fund, to receive such orders as the Consultant or its representative may give. At no time shall any work be conducted on the site in the absence of an individual present who has been so designated by the Contractor or its superintendent as having authority to receive and execute instructions given by the Consultant or its representative.

(3) If the superintendent, project manager or other supervisory employees are not satisfactory to the Fund, the Contractor shall, if directed by the Fund, immediately replace such supervisory employees with other supervisory employees acceptable to the Consultant and the Fund. Such replacement and all related impacts shall be at no additional cost to the Fund.

[Instructions: See Amendments for the applicability of this section.]

(4) In addition to the superintendent required by 2.06(1) and (2), provide a full-time Project Manager who has ten (10) years' experience as a Project

Manager with experience on three (3) other projects of similar size and scope. "Full-time" in the previous sentence is defined as being on the site of the work at any time work is being performed unless an absence is approved by the Consultant and the Fund. The Project Manager shall provide constant personal attention in managing the prosecution of all the work while it is in progress and shall respond to concerns expressed by the Consultant and the Fund in a responsible and reliable manner. The Project Manager shall not be obligated to perform any other work that is likely to impair his/her attention to the prosecution and completion of the work of this Contract. The Project Manager shall be acceptable to the Consultant and the Fund and shall not be replaced without written permission of the Consultant and the Fund unless the Project Manager proves to be unsatisfactory to the Contractor or ceases to be in its employ. The value of the Project Manager in the Contract Breakdown required in Section 4.08 of Article IV shall be fixed at \$10,000 for each month, or portion thereof, prior to the substantial completion date specified on page A-1 of the Agreement.

Section 2.07 Employment of Workers

The Contractor shall at all times employ competent and suitable workers and equipment which shall be sufficient to prosecute all the work to full completion in a disciplined orderly manner and in accordance with the Time Progress Schedule and the contractually required time of performance. All workers engaged in special or skilled work shall have had sufficient experience in such work to properly and satisfactorily perform the same. Should the Consultant deem any employee of the Contractor or any subcontractor incompetent, careless, insubordinate or otherwise objectionable or whose continued employment on the work is deemed by the Consultant to be contrary to the public interest, it shall so advise the Contractor and the latter shall dismiss or shall cause the subcontractor, if such employee is employed by the latter, to dismiss such employee and such employee shall not again be employed on the work to be performed under the Contract without obtaining the prior written approval of the Consultant.

Section 2.08 Detailed Drawings and Instructions

Upon timely notice from the Contractor that supplementary information is required, the Consultant shall furnish additional instructions, by means of Drawings or otherwise, necessary for the proper execution of the work. All such Drawings and instructions shall be consistent with the Contract

Documents, true developments thereof and reasonably inferable therefrom. The work shall be executed in conformity therewith and the Contractor shall do no work without proper Drawings and/or instructions.

Section 2.09 Contract Documents to Be Kept at Site

The Contractor shall keep at the site of the work a copy of the Drawings and Specifications and shall at all times give the Consultant and the Fund access thereto.

Section 2.10 Permits and Building Codes

The Contractor shall obtain from the proper authorities all permits legally required to carry on its work, pay any and all taxes and fees legally required and shall be responsible for conducting its operations in accordance with the provisions of such permits. Except as otherwise expressly provided in the Contract Documents, all of the work covered by this Contract which is to be performed on property owned by the State University of New York is not subject to the building code of any city, county or other political subdivision of the State of New York. It is, however, subject to the provisions of the Building Code of New York State and the applicable Federal and State health and labor laws and regulations.

Section 2.11 Surveys

(1) From the data shown on the Drawings and identified at the site by the Consultant, a licensed surveyor, to be designated and paid for by the Fund, shall establish one (1) fixed benchmark and one (1) fixed base line at the site. The Contractor shall work from the benchmarks and base lines shown on the Drawings, identified at the site by the Consultant and established at the site by the aforesaid surveyor and shall establish such supplementary bench marks and base lines that are required in order for it to lay out the work. The Contractor shall be responsible for all measurements that may be required for execution of the work to the exact position and elevation as prescribed in the Specifications, shown on the Drawings, or as the same may be modified at the direction of the Consultant to meet changed conditions or as a result of modifications to the work covered by the Contract.

(2) The Contractor shall furnish at its own expense such stakes and other required equipment, tools and materials, and all labor as may be required in laying out any part of the work. If, for any reason,

monuments are disturbed, it shall be the responsibility of the Contractor to reestablish them, without cost to the Fund, as directed by the Consultant. The Consultant may require that construction work be suspended at any time when location and limit marks established by the Contractor are not reasonably adequate to permit checking completed work or the work in progress.

(3) In all multiple-story construction, the Contractor shall establish and maintain line marks at each floor level and grade marks four (4) feet above the finished floor at each floor level.

Section 2.12 Site Conditions

(1) The Contractor acknowledges that it has assumed the risk and that the Contract consideration includes such provision as it deems proper for all physical conditions and subsurface conditions as it could reasonably anticipate encountering from the provisions of the Contract Documents, borings, rock cores, topographical maps and such other information as the Fund or the Consultant made available to it prior to the Fund's receipt of bids or from its own inspection and examination of the site prior to the Fund's receipt of bids.

(2) In the event that the Contractor encounters subsurface physical conditions or other latent physical conditions at the site differing substantially from those shown on or described or indicated in the Contract Documents and which could not have been reasonably anticipated from the aforesaid information made available by the Fund or the Consultant or from the Contractor's aforesaid inspection and examination of the site, it shall give immediate notice to the Consultant of such conditions before they are disturbed. The Consultant will thereupon promptly investigate the conditions and, if it finds that they do substantially differ from that which should have been reasonably anticipated by the Contractor, it shall make such changes in the Drawings and Specifications as may be necessary and a Change Order or Field Order may be issued, the amount of which shall be determined in accordance with the provisions of Sections 4.02 and 4.05A, to reflect any increase or decrease in the cost of, or the time required for, performance of the Contract as a result of any of the aforesaid changes made by the Consultant and/or as a result of such unanticipated subsurface conditions.

Section 2.13 Right to Change Location

When additional information regarding the subsurface conditions becomes available to the Fund as a result

of the excavation work, further testing or otherwise, it may be found desirable to change the location, alignment, dimensions or grades to conform to such conditions. The Fund reserves the right to make such reasonable changes in the work as, in its opinion, may be considered necessary or desirable; such changes and any adjustments in the Contract consideration as a result thereof are to be made in accordance with the provisions of Sections 2.04, 2.05 4.02 and 4.05A of the Agreement.

Section 2.14 Unforeseen Difficulties

Except as otherwise expressly provided in Section 2.12 of the Agreement and in other Sections of the Contract Documents, the Contractor acknowledges that it has assumed the risk and that the Contract consideration includes such provisions as it deems proper for any unforeseeable obstacles or difficulties which it may encounter in the performance of the work.

Section 2.15 Moving Materials and Equipment

Should it become necessary, in the judgment of the Consultant, at any time during the course of the work to move materials which are stored on the site and equipment which has been temporarily placed thereon, the Contractor upon request of the Consultant shall move them or cause them to be moved at its sole cost and expense; provided, however, if materials and equipment that have been stored or placed by the Contractor at a location on the site expressly approved, in writing, by the Consultant and the same are moved or caused to be moved by the Contractor at the Consultant's request, such removal shall be deemed extra work and the Contractor shall be compensated therefor in accordance with the provisions of Sections 4.02 and 4.05A of the Agreement.

Section 2.16 Other Contracts

(1) Prior to and during the progress of the work hereunder the Fund reserves the right to let or permit the letting of other contracts relating to the Project or in connection with work on sites within the Contract limit lines or adjoining or adjacent to that on which the work covered by this Contract is to be performed. In the event such other contracts are let, or have previously been let, the Contractor and such other contractors shall coordinate their work with each other, arrange the sequence of their work to conform with the progressive operation of all the work covered by such contracts and afford each other reasonable opportunities for the introduction and storage of their materials, supplies and equipment and the execution

of their work. If the Contractor or such other contractors contend that their work or the progress thereof is being interfered with by the acts or omissions of the other or others or that there is a failure to coordinate or properly arrange the sequence of the work on the part of the Contractor or such other contractors, they shall, within five (5) working days of the commencement of such interference or failure of coordination or failure to perform work in proper sequence, give written notification to the Fund and the Consultant of such contention. Upon receipt of such notification or on its own initiative, the Consultant shall investigate the situation and issue such instructions to the Contractor or such other contractors with respect thereto as it may deem proper. The Consultant shall determine the rights of the Contractor and of such other contractors and the sequence of work necessary to expedite the completion of all work covered by this Contract in relation to the work covered by said other contracts.

(2) The Contractor agrees that it has and will make no claim for damages against the Fund by reason of any act or omission to act by any other contractor or in connection with the Consultant's or Fund's acts or omissions to act in connection with such other contractor, but the Contractor shall have a right to recover such damages from the other contractors.

(3) Not Used.

(4) If the proper and accurate performance of the work covered by the Contract depends upon the proper performance and execution of work not included herein or depends upon the work of any other contractor, the Contractor shall inspect and promptly report to the Consultant any defects in such work that render it unsuitable for proper execution and results. Its failure to so inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of the work covered by the Contract, except as to latent defects which may be discovered thereafter.

Section 2.17 Inspection and Testing

(1) All materials and workmanship shall be subject to inspection, examination and testing by the Consultant and the Fund at all times during the performance of the work and at all places where the work is carried on. Except as otherwise herein specified, the Fund shall pay for the cost of inspection, examination and testing by the Consultant or the Fund. If, however, the tests prove that the materials and/or work tested do not meet the requirements of the Contract, then the entire cost of such tests and any additional testing and or inspections required until the

work is deemed compliant is to be borne by the Contractor. The Consultant will have the right to reject defective material and workmanship furnished by the Contractor or require its correction. The Contractor, without charge therefor, shall satisfactorily and promptly correct all rejected work and replace all rejected material with proper material.

(2) The Contractor shall promptly segregate and remove from the site of the work all rejected material and work. If the Contractor shall fail to proceed at once with the replacing of rejected material and/or correction of defective workmanship, the Fund may, by contract or otherwise, replace such material and/or correct such workmanship, and charge the costs thereof to the Contractor or it may cancel the Contract and terminate the Contractor's employment as provided in the Agreement.

(3) The Contractor, without additional charge, shall promptly furnish all reasonable facilities, labor materials and equipment with associated operators necessary for the safe and convenient access, inspection and testing that may be required by the Consultant or the Fund.

(4) If the Contract Documents or the Consultant's instructions or the applicable laws, ordinances or regulations of any governmental authority require any part of the work covered by the Contract to be specially tested or inspected, the Contractor shall give the Consultant timely notice of its readiness for such testing or inspection or, if the same is to be performed by a governmental authority, of the date fixed therefor. If any such work, without the written permission of the Consultant, should be covered up prior to such testing or inspection, the Contractor, at its sole cost and expense must, if directed by the Consultant, uncover the same for testing or inspection and reconstruct same after the tests or inspection are conducted. All certificates of inspection or testing, involving the Contractor's work, required to be obtained from governmental authorities are to be secured by the Contractor at its sole cost and expense.

(5) Should it be considered necessary or advisable by the Consultant at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out same, the Contractor, upon request, shall furnish all necessary facilities, labor and material to perform such examination. If the work subject to such examination is found to be defective or nonconforming in any manner due to the fault of the Contractor or any of its subcontractors, such uncovering or destruction and necessary reconstruction, even though such includes

work not covered in the Contract, shall be at the expense of the Contractor. If, however, such work after testing and examination is found to be satisfactory, the Fund will pay the Contractor the cost of such uncovering or destruction and reconstruction, such cost to be determined as in the case of extra work as provided in Sections 4.02 and 4.05A.

(6) Inspection of material and furnished articles to be incorporated in the work may be made at the place of production, manufacture or shipment unless otherwise stated herein. The inspection of material and workmanship for final acceptance as a whole or in part will be made at the site of the work.

Section 2.18 Subcontractors

(1) Except for subcontractors designated by the Fund, or required to be named at any earlier date, pursuant to the provisions of the Information for Bidders, within thirty (30) calendar days after receipt of the Notice to Proceed, the Contractor must submit a written statement to the Consultant giving the name and address of all proposed subcontractors. Said statement must contain a description of the portion of the work and materials which the proposed subcontractors are to perform and furnish and any other information tending to prove that the proposed subcontractors have the necessary facilities, skill, integrity, past experience and financial resources to perform the work in accordance with the terms and provisions of the Contract Documents.

(2) If the Consultant finds that the proposed subcontractors are qualified, it will so notify the Contractor within ten (10) working days after receipt of the aforesaid information. If the determination is to the contrary, however, the Consultant within such period will notify the Contractor of such determination and the latter, unless it decides to do such work itself and is qualified, in the Consultant's opinion, to do such work, must, within ten (10) working days thereafter, submit similar information with respect to other proposed subcontractors.

(3) The Consultant's approval of a subcontractor and/or the Fund's designation of a subcontractor pursuant to the provisions of the Contract Documents shall not relieve the Contractor of any of its responsibilities, duties and liabilities hereunder. The Contractor shall be solely responsible to the Fund for the acts or defaults of such subcontractors and of such subcontractors' officers, agents and employees, each of whom shall, for this purpose, be deemed to be the agent or employee of the Contractor to the extent of its subcontract.

(4) The Contractor shall be fully responsible for the administration, integration, coordination, direction and supervision of all of its subcontractors and of all work and it shall check all space requirements of the work and coordinate and adjust the same so that conflicts in space do not occur in the work being performed by it with its own employees and with the work being performed by its subcontractors and so that all equipment, piping, wiring, etc., can be installed, where possible, in the spaces allowed for same.

(5) No subcontractor shall be permitted to work at the site until: (a) it has furnished satisfactory evidence to the Consultant of the insurance required by law; (b) in the case of a Project involving a federal grant, it has furnished satisfactory evidence to the Consultant of the same type and amount of liability insurance as that required of the Contractor by Section 5.06 of the Agreement; and (c) except for subcontractors designated by the Fund pursuant to the provisions of the Information for Bidders, it has been approved by the Consultant.

(6) Within ten (10) working days after the Contractor receives payment from the Fund on account of a progress payment application for the percentage of the work done, it shall pay each of its subcontractors the sum contained in said payment for the percentage of said subcontractor's work, less the same amount retained therefrom by the Fund under the terms of the Contract Documents or in consequence of any legal proceedings or statutory liens, and less any amounts due the Contractor under the subcontract for work not performed or not properly or timely performed by the subcontractor. In the event any subcontractor is not paid by the Contractor, the former should immediately notify the Fund of such fact.

(7) The Contractor shall execute with each of its subcontractors and shall require all subcontractors to execute with their sub-subcontractors a written agreement which shall bind the latter to the terms and provisions of this Contract insofar as such terms and provisions are applicable to the work to be performed by such subcontractors. The Contractor shall require all subcontractors and sub-subcontractors to promptly, upon request, file with the Consultant and the Fund a conformed copy of such agreements, from which the price and terms of payment may be deleted.

(8) If for sufficient reason, at any time during the progress of the work to be performed hereunder, the Consultant determines that any subcontractor or sub-subcontractor is incompetent, careless, or uncooperative, the Consultant will notify the Contractor accordingly and immediate steps will be

taken by the Contractor for cancellation of such subcontract or sub-subcontract. Such termination, however, shall not give rise to any claim by the Contractor or by such subcontractor or sub-subcontractor for loss of prospective profits on work unperformed and/or work unfurnished and a provision to that effect shall be contained in all subcontracts and sub-subcontracts.

(9) No provisions of this Contract shall create or be construed as creating any contractual relation between the Fund and any subcontractor or sub-subcontractor or with any person, firm or corporation employed by, contracted with or whose services are utilized by the Contractor.

Section 2.19 Shop Drawings and Samples

(1) The Contractor in accordance with the approved Shop Drawing, Submittal, Mockup, and Sample schedules and with such promptness and in such sequence as to cause no delay in the work, shall submit for the Consultant's approval all Shop Drawings and Samples called for under the Contract or requested by the Consultant.

(2) Shop Drawings and mock-ups shall establish the actual detail of the work, indicate proper relation to adjoining work, amplify design details of mechanical and electrical equipment in proper relation to physical spaces in the structure, and incorporate minor changes of design or construction to suit actual conditions. Shop drawings include drawings, diagrams, schedules, product data and other information or materials specially prepared for the work by the Contractor to illustrate some portion of the work. Product data include standard illustrations, schedules, performance charts, instructions, brochures, diagrams and other information identified by the Contractor to illustrate materials or equipment for some portion of the work.

(3) All Shop Drawings, mock-ups and samples shall be thoroughly checked by the Contractor for compliance with the Contract Documents before submitting them to the Consultant for approval and all Shop Drawings shall bear the Contractor's recommendation for approval. Any Shop Drawings submitted without this stamp of approval and certification, and Shop Drawings which, in the Consultant's opinion, are incomplete, contain numerous errors or have not been checked or only checked superficially, will be returned unchecked by the Consultant for resubmission by the Contractor. In checking Shop Drawings, the Contractor shall verify all dimensions and field conditions and shall check and

coordinate the Shop Drawings of any section or trade with the requirements of all other sections or trades whose work is related thereto, as required for proper and complete installation and sequence of the work.

(4) Samples must be of sufficient size or number to show the quality, type, range of color, finish and texture of the material. Each Sample shall be properly labeled to show the nature of the material, trade name of manufacturer, name and location of the work where the material represented by the Sample is to be used and the name of the Contractor submitting the Sample. Transportation charges to the Consultant must be prepaid on Samples forwarded to it.

(5) At the start of the Project, the format for submittals shall be established by the Fund. If an electronic method is selected for the submission and approval of submittals, the Contractor shall provide submittals in a PDF format and the Consultant will return the submittals in electronic format to the Contractor. For both hard-copy and electronic submittal formats, all submittals that require physical samples or mock-ups shall be provided in accordance with the requirements set forth in the Contract Specifications. Shop Drawings and Samples, submitted by the Contractor in accordance with the approved Shop Drawing and Sample schedule that is included in the Time Progress Schedule, will be reviewed by the Consultant within fifteen (15) working days and if satisfactory will be approved. A Shop Drawing, when approved, will be returned to the Contractor. If not satisfactory, the Drawings and Samples will be appropriately marked and returned to the Contractor for correction thereof, in which event the Contractor shall resubmit to the Consultant a corrected copy of the Shop Drawing or a new Sample, as the case may be. The Contractor shall make any correction required by the Consultant and shall appropriately note any changes or revisions on the Shop Drawing, dated to correspond with the date of the Consultant's request for the change. Upon approval of the Shop Drawing by the Consultant, the Contractor shall promptly furnish to the Consultant as many copies thereof as the Consultant may reasonably request. Should more than two (2) separate reviews of any required shop drawings or samples submitted be necessary, in the judgement of the Consultant and the Fund, the Contractor shall be responsible for the reasonable costs incurred by the Fund for such additional reviews by the Consultant.

(6) At the time of submission of a Shop Drawing or Sample, the Contractor shall inform the Consultant and the Fund in writing of any deviation in the Shop Drawing or Sample from the requirements of the

Contract Documents. Unless such deviation is specifically noted by the Contractor with a notation that such deviation will result in extra work for which the Contractor requests payment, the Contractor shall be deemed to have waived any claim for extra work, additional compensation or payment or an extension of time with respect to all work shown on, described in or related to the Shop Drawing or Sample.

(7) The Consultant's approval of Shop Drawings or Samples is for design only and is not a complete check on the method of assembly, erection or construction. Approval shall in no way be construed as: (a) permitting any departure whatsoever from the Contract Documents, except where the Contractor, in accordance with the provisions of paragraph 6 of this Section, has previously notified the Fund and the Consultant of such departure; (b) relieving the Contractor of full responsibility for any error in quality of materials, details, dimensions, omissions or otherwise that may exist; (c) relieving the Contractor of full responsibility for adequate field connections, erection techniques, bracing or deficiencies in strength; (d) relieving the Contractor of full responsibility for satisfactory performance of all work and coordination with the work of all subcontractors and other contractors; or (e) permitting departure from additional details or instructions previously furnished by the Consultant.

(8) No work requiring a Shop Drawing or Sample shall be commenced until a Shop Drawing or Sample is approved by the Consultant and all such work shall be: (a) in accordance with the approved Shop Drawing, provided the latter conforms in all respects to the Contract Documents or to such deviations therefrom as have been previously noted by the Contractor in accordance with the provisions of paragraph 6 of this Section; and (b) in conformance in all respects to the sample furnished to and approved by the Consultant and, unless otherwise specified, as new and of good quality.

(9) The Contractor may be required to provide professional services that constitute the practice of architecture or engineering when specifically required by the Contract Documents for a portion of the work or the Contractor needs to provide such services in order to carry out its responsibilities for construction means, methods, techniques, sequences and procedures. When professional services are required in the Contract Documents, the Consultant will specify all performance and design criteria that such services must satisfy. The Fund and Consultant shall be entitled to rely on the adequacy, accuracy and completeness of the professional services,

certifications, and approvals performed or provided by design professionals working for the Contractor.

(10) Contractor agrees that the Fund may deduct from any application for payment made by the Contractor, any and all Design Professional, Consultant and/or Construction Management fees and costs incurred by the Fund together with a markup upon such hard costs in the amount of 15% in the review or evaluation of any substitutions for methods, products or performance pursuant to this Section 2.19.

Section 2.20 Equivalents - Approved Equal

(1) Equivalents or Approvals - General

a. The words "similar and equal to", or equal", "equivalent" and such other words of similar content and meaning shall for the purposes of this Contract be deemed to mean similar and equivalent to one of the named products. For the purposes of subdivisions (1) and (2) of this Section and for the purposes of the Bidding Documents, the word "products" shall be deemed to include the words "articles", "materials", "items", "equipment" and "methods". Whenever in the Contract Documents one or more products are specified, the words "similar and equal to" shall be deemed inserted.

b. Whenever any product is specified in the Contract Documents by a reference to the name, trade name, make or catalog number of any manufacturer or supplier, the intent is not to limit competition, but to establish a standard of quality which the Consultant has determined is necessary for the Project. A Contractor may at its option use any product other than that specified in the Contract Documents provided the same is approved by the Consultant in accordance with the procedures set forth in subdivision (2) of this Section except for the single/sole source shown in Specification Sections where the use of another product is not permitted. In all cases the Consultant shall be the sole judge as to whether a proposed product is to be approved and the Contractor shall have the burden of proving, at its own cost and expense, to the satisfaction of the Consultant, that the proposed product is similar and equal to the named product. In making such determination the Consultant may establish such objective and appearance criteria as it may deem proper that the proposed product must meet in order for it to be approved.

- c. Nothing in the Contract Documents shall be construed as representing, expressly or implied, that the named product is available or that there is or there is not a product similar and equal to any of the named products and the Contractor shall have and make no claim by reason of the availability or lack of availability of the named product or of a product similar and equal to any named product.
- d. The Contractor shall have and make no claim for an extension of time or for damages by reason of the time taken by the Consultant in considering a product proposed by the Contractor or by reason of the failure of the Consultant to approve a product proposed by the Contractor.
- e. Requests for approval of proposed equivalents will be received by the Consultant only from the Contractor.
- f. Approval shall in no way be construed as: (a) permitting any departure whatsoever from the Contract Documents, (b) relieving the Contractor of full responsibility for any error in quality of materials, details, dimensions, sequence of work, omissions or otherwise that may exist, (c) relieving the Contractor of full responsibility for adequate field connections, erection techniques, bracing or deficiencies in strength, (d) relieving the Contractor of full responsibility for satisfactory performance of all work to achieve a functionally complete facility or result and coordination with the work of all subcontractors and other contractors or (e) permitting departure from additional details or instructions previously furnished by the Consultant.
- g. Contractor agrees that the Contractor approves and authorizes the deduction from Contractor's applications for payment any and all costs incurred by the Construction Manager, Consultant, Design Professional or otherwise in evaluating Contractor's submissions under this Section 2.20, together with a markup upon such hard costs in the amount of 15%.

(2) Equivalents or Approvals After Bidding

- a. Any and all submissions for "or equal" products which are submitted by the Contractor after award of the Contract must be made by the Contractor within ninety (90) calendar days after the date of award. Contractor agrees that it waives and relinquishes the right, claim or privilege, if

any, to submit "or equal" proposals if such are made ninety (90) calendar days after the date of award of the Contract to the Contractor.

- b. Requests for approval of proposed equivalents will be considered by the Consultant after bidding only in the following cases: (a) the named product cannot be obtained by the Contractor because of strikes, lockouts, bankruptcies or discontinuance of manufacture and the Contractor makes a written request to the Consultant for consideration of the proposed equivalent within ten (10) calendar days of the date it ascertains it cannot obtain the named product; or (b) the proposed equivalent is superior, in the opinion of the Consultant, to the named product; or (c) the proposed equivalent, in the opinion of the Consultant, is equal to the named product and its use is to the advantage of the Fund, e.g., the Fund receives an equitable credit, acceptable to it, as a result of the estimated cost savings to the Contractor from the use of the proposed equivalent or the Fund determines that the Contractor has not failed to act diligently in placing the necessary purchase orders and a savings in the time required for the completion of the construction of the Project should result from the use of the proposed equivalent.
- c. Where the Consultant pursuant to the provisions of this subdivision approves a product proposed by a Contractor and such proposed product requires a revision or redesign of any part of the work covered by this Contract, all such revision and redesign and all new Drawings and details required therefor shall be subject to the approval of the Consultant and shall be provided by the Contractor at its own cost and expense.
- d. Where the Consultant pursuant to the provisions of this Section approves a product proposed by a Contractor and such proposed product requires a different quantity and/or arrangement of duct work, piping, wiring, conduit or any other part of the work from that specified, detailed or indicated in the Contract Documents, the Contractor shall provide the same at its own cost and expense.

- (3) Contractor agrees that the Fund may deduct from any application for payment made by the Contractor any and all Design Professional, Consultant and/or Construction Management fees and costs incurred by the Fund, together with a markup upon such hard costs in the amount of 15%, in the consideration or evaluation of any substitutions for methods, products or performance pursuant to this Section 2.20.

Section 2.21 Patents, Trademarks and Copyrights

The Contractor acknowledges that the Contract consideration includes all royalties, license fees and costs arising from patents or trademarks in any way involved in the work; provided, however, that the Contract consideration shall not be deemed to have included therein any royalty, license fee or cost arising from a patent or trademark for a design prepared by the Consultant and the Contractor shall have no liability in connection therewith. Where the Contractor is required or desires to use any product, device, material or process covered by patent or trademark, the Contractor shall indemnify and save harmless the Fund from any and all claims, actions, causes of action or demands, for infringement by reason of the use of such patented product, device, material or process, and shall indemnify the Fund from any cost, liability, damage and expense, including reasonable attorneys' fees and court costs, which it may be obligated to incur or pay by reason of any claim or infringement at any time both before or after the Fund's final acceptance of all the work to be performed under the Contract.

Section 2.22 Possession Prior to Completion

If before the final completion of all the work it shall be deemed advisable or necessary by the Fund to take over, use, occupy or operate any part of the completed or partly completed work or to place or install therein equipment and furnishings, the Fund, upon reasonable written notice to the Contractor, shall have the right to so do and the Contractor will not in any way interfere therewith or object to the same. Such action by the Fund shall in no way affect the obligations of the Contractor under the terms and provisions of the Contract Documents and the Contractor acknowledges that such action by the Fund does not in any way evidence the completion of the work or any part thereof or in any way signify the Fund's acceptance of the work or any part thereof. The Contractor agrees to continue the performance of all work covered by the Contract in a manner which will not unreasonably interfere with such takeover, use, occupancy, operation, placement or installation.

Section 2.23 Completion and Acceptance

(1) Partial Completion

If before the final completion of all the work any portion of the permanent construction has been satisfactorily completed and the same will be immediately useful to the Fund, the latter may, by written notice, advise the Contractor that it accepts such portion of the work. Such action by the Fund shall in no way affect the obligations of the Contractor under the terms and provisions of the Contract with respect to any work not so completed and accepted. The partial completion of any portion of the Contractor's work by the Fund, the Campus or the Consultant, shall not impact the assessment of liquidated damages or actual costs for delays or disruption to the Project caused by the Contractor, its subcontractors or vendors.

(2) Substantial Completion

When all the Work covered by the Contract is substantially completed, as defined in Section 1.01, the Contractor shall give written notice thereof to the Fund and the Consultant. The latter will then promptly make an inspection of the work and, if they shall determine that all the work is substantially completed, they shall so advise the Contractor. Such action shall in no way affect the obligations of the Contractor under the terms and provisions of the Contract with respect to any uncompleted (including untested or deferred work), unaccepted or corrective work or in any way affect, limit or preclude the issuance by the Consultant, from time to time thereafter, of "Punch Lists", i.e., lists of uncompleted or corrective work which the Contractor is to promptly complete and/or correct. In the judgement of the Fund, should more than two (2) separate inspections of the Work be necessary, the Contractor agrees that the Fund may deduct from any application for payment made by the Contractor, any and all Design Professional, Consultant and/or Construction Management fees and costs incurred by the Fund together with a markup upon such hard costs in the amount of 15% for all such additional inspections.

The Contractor must fully, completely and acceptably perform all Punch List work and any other work subsequently discovered remaining to be completed or corrected, within ninety (90) calendar days of Substantial Completion or within such other timeframe stipulated by the Fund or Consultant. Failure to complete the Punch List within the time so designated hereunder may be deemed default on the part of the Contractor.

(3) Final Completion and Acceptance

After the completion of all the work the Contractor shall give written notice to the Fund and the Consultant that all the work is ready for inspection and final acceptance. The Fund and the Consultant shall promptly make such inspection and, if they shall determine that all the work has been satisfactorily completed, the Fund shall thereupon by written notice advise the Contractor that it accepts such work. In the judgement of the Fund, should more than two (2) separate inspections of the Work be necessary, the Contractor agrees that the Fund may deduct from any application for payment made by the Contractor, any and all Design Professional, Consultant and/or Construction Management fees and costs incurred by the Fund together with a markup upon such hard costs in the amount of 15% for all such additional inspections.

Section 2.24 Record Drawings

(1) At the start of the Project, the format for Record Drawings shall be established by the Fund. Prior to acceptance by the Fund of all work covered by the Contract, the Contractor shall furnish to the Consultant one (1) set of current Contract Drawings on which the Contractor has recorded, using colored pencil for hard copy format or electronic editing tool in contrasting color for electronic format, in a neat and workmanlike manner, all instances where actual field construction differs from work as indicated on the Contract Drawings. These "Record". Drawings shall show the following information: (a) all significant changes in plans, sections, elevations and details, such as shifts in location of walls, doors, windows, stairs and the like made during construction; (b) all significant changes in foundations, columns, beams, openings, concrete reinforcing, lintels, concealed anchorages and "knock-out" panels made during construction; (c) final location of electric panels, final arrangement of electric circuits and any significant changes made in electrical design as a result of Change Orders, Field Orders or job conditions; (d) final location and arrangement of all mechanical equipment and major concealed plumbing, including, but not limited to, supply and circulating mains, vent stacks, sanitary and storm water drainage; (e) final location and arrangement of all underground utilities, connections to building and/or rerouting of existing utilities, including, but not limited to, sanitary, storm, heating, electric, signal, gas, water and telephone; and (f) final make and model for all significant equipment and devices listed in the specifications. The Contractor shall also provide an electronic version as determined by the Consultant.

(2) Periodically during the work, the Consultant may request submission of a progress set of Record Drawings for review and advise the Contractor of errors or omissions, if any, that must be corrected or completed prior to final submission of the Record Drawings. Shop Drawings shall not be acceptable as Record Drawings.

(3) The Contractor shall submit the Record Drawings to the Consultant at least fifteen (15) days prior to the date of Substantial Completion. The Consultant will then review the Record Drawings and, if they shall determine that the Record Drawings represent the actual field construction being completed, they shall so advise the Contractor. If not satisfactory, the Record Drawings will be appropriately marked and returned to the Contractor for correction thereof, in which event the Contractor shall promptly correct and resubmit to the Consultant a corrected copy of the Record Drawings. Acceptance of the Record Drawings by the Fund is a condition precedent to the Contractor's entitlement to receive Final Payment.

Section 2.25 Guarantees

(1) The Contractor, at the convenience of the Fund, shall remove, replace and/or repair at its own cost and expense any defects in workmanship, materials, ratings, capacities or characteristics occurring in or to the work covered by the Contract within one (1) year or within such longer period as may otherwise be provided in the Contract, the period of such guarantee to commence with the Fund's final acceptance of all work covered under the Contract or at such other date or dates as the Fund may specify prior to that time, and the Contractor, upon demand, shall pay for all damage to all other work resulting from such defects and all expenses necessary to remove, replace and/or repair such other work which may be damaged in removing, replacing or repairing the said defects. The obligations of the Contractor under the provisions of this paragraph or any other guarantee provisions of the Contract Documents are not limited to the monies retained by the Fund under the Contract.

(2) Unless such removal, replacement and/or repair shall be performed by the Contractor within ten (10) working days after it receives written notice from the Fund specifying such defect, or if such defect is of such a nature that it cannot be completely removed, repaired and/or replaced within said ten (10) day period and the Contractor shall not have diligently commenced removing, repairing and/or replacing such defect within said ten (10) day period and shall not thereafter with reasonable diligence and in good

faith proceed to do such work, the Fund may employ such other person, firm or corporation as it may choose to perform such removal, replacement and/or repair and the Contractor agrees, upon demand, to pay to the Fund all amounts which it expends for such work.

Section 2.26 Default of Contractor

(1) In addition to those instances specifically referred to in other Sections hereof, the Fund shall have the right to declare the Contractor in default of the whole or any part of the work if:

- a. The Contractor becomes insolvent; or if
- b. The Contractor makes an assignment for the benefit of creditors pursuant to the statutes of the State of New York; or if
- c. A voluntary or involuntary petition in bankruptcy is filed by or against the Contractor; or if
- d. A receiver or receivers are appointed to take charge of the Contractor's property or affairs; or if
- e. The Contractor fails to commence work when notified to do so by the Consultant; or if
- f. The Contractor shall abandon the work; or if
- g. The Contractor shall refuse to proceed with the Work or extra Work when and as directed by the Consultant or Fund; or if
- h. The Contractor shall without just cause reduce its working force to a number which, if maintained, would be insufficient, in the opinion of the Fund, to complete the work in accordance with the approved time progress schedule, and shall fail or refuse to sufficiently increase such working force when ordered to do so by the Consultant; or if
- i. The Contractor shall sublet, assign, transfer convey, or otherwise dispose of the Contract other than as herein specified; or if
- j. The Fund shall be of the opinion that the Contractor is or has been unnecessarily or unreasonably or willfully delaying the performance and completion of the work, or the award of necessary subcontracts, or the placing of necessary material and equipment orders; or if
- k. The Fund shall be of the opinion that the work cannot be completed within the time herein

provided therefor or within the time to which such completion may have been extended; provided, however, that the impossibility of timely completion is, in the Fund's opinion, attributable to conditions within the Contractor's control; or if

- l. The work is not completed within the time herein provided therefor or within the time to which the Contractor may be entitled to have such completion extended; or if
- m. The Fund shall be of the opinion that the Contractor is or has been willfully or in bad faith violating any of the provisions of this Contract;
- n. The Fund shall be of the opinion that the Contractor is not or has not been executing the Contract in good faith and in accordance with its terms; or if
- o. At any time during the period of the Agreement, insurance as required is not in effect or proof thereof is not provided to the Fund.

(2) Before the Fund shall exercise its right to declare the Contractor in default by reason of the conditions set forth in the above items *a, b, c, d, e, f, g, h, j, k, l, m, n* and *o*, it shall give the Contractor three (3) working days' notice of its intention to declare the Contractor in default and unless, within such three (3) day period, the Contractor shall make arrangements, satisfactory to the Fund, to correct and/or eliminate the conditions set forth in the Fund's aforesaid notice, the Contractor may be declared in default at the expiration of such three (3) day period or at the expiration of such longer period of time as the Fund may determine.

(3) The right to declare in default for any of the grounds specified or referred to shall be exercised by the Fund sending the Contractor a written notice setting forth the ground or grounds upon which such default is declared. Upon receipt of notice that it has been declared in default, the Contractor shall immediately discontinue all further operations under the Contract and shall immediately quit the site, leaving untouched all plant, materials, equipment, tools and supplies then on site.

(4) The Fund, after declaring the Contractor in default, may then have the work completed by such means and in such manner, by contract, with or without public letting, or otherwise, as it may deem advisable, utilizing for such purpose such of the Contractor's plant, materials, equipment, tools and supplies remaining on the site, and also such subcontractors as it may deem advisable, or it may call

upon the Contractor's surety at its own expense to do so.

(5) In the event that the Fund declared the Contractor in default of the work or any part of the work, the Contractor, in addition to any other liability to the Fund hereunder or otherwise provided for or allowed by law, shall be liable to the Fund for any costs it incurs for additional architectural and engineering services necessary, in its opinion, because of the default and the total amount of liquidated damages from the date when the work should have been completed by the Contractor in accordance with the terms hereof to the date of actual completion of the work, both of which items shall be considered as expenses incurred by the Fund in completing the work and the amount of which may be charged against and deducted out of such monies as would have been payable to the Contractor or its surety if the work had been completed without a default.

(6) If the Fund completes the work, the Consultant shall issue a certificate stating the expenses incurred in such completion, including the cost of re-letting. Such certificate shall be final, binding and conclusive upon the Contractor, its surety, and any person claiming under or through the Contractor, as to the amount thereof.

(7) The expense of such completion, as so certified by the Consultant, shall be charged against and deducted out of such monies as would have been payable to the Contractor if it had completed the work; the balance of such monies, if any, subject to the other provisions of the Contract, to be paid to the Contractor without interest after such completion. Should the expense of such completion, so certified by the Consultant, exceed the total sum which would have been payable under the Contract if the same had been completed by the Contractor, any such excess shall be paid by the Contractor to the Fund upon demand.

(8) In the event the Fund shall determine to complete the work without calling upon the Contractor's surety to do so, the Contractor shall not be entitled, from and after the effective date of the declaration of the default, to receive any further payment under the Contract until the said work shall be wholly completed and accepted by the Fund.

(9) In case the Fund shall declare the Contractor in default as to a part of the work only, the Contractor shall discontinue such part, shall continue performing the remainder of the work in strict conformity with the terms of the Contract, and shall in no way hinder or interfere with any other contractors or persons whom

the Fund may engage to complete the work as to which the Contractor was declared in default.

(10) The provisions relating to declaring the Contractor in default as to the entire work shall be equally applicable to a declaration of partial default, except that the Fund shall be entitled to utilize for completion of the part of the work as to which the Contractor was declared in default only such plant, materials, equipment, tools and supplies as had been previously used by the Contractor on such part.

(11) In completing the whole or any part of the work, the Consultant and the Fund shall have the power to depart from, change or vary the terms and provisions of the Contract; provided, however, that such departure, change or variation is made for the purpose of reducing the time or expense of such completion. Such departure, change or variations, even to the extent of accepting a lesser or different performance, shall not affect the conclusiveness of the Consultant's certificate of the cost of completion, nor shall it constitute a defense to any action to recover the amount by which such certificate exceeds the amount which would have been payable to the Contractor hereunder but for its default.

(12) The provisions of this Section shall be in addition to any and all other legal or equitable remedies provided by this Agreement and otherwise applicable by law.

Section 2.27 Termination for Convenience

(1) The performance of work under this Contract may be terminated by the Fund, in whole or in part, whenever the Fund shall determine that such termination is in the best interest of the Fund. Any such termination shall be effected by a notice in writing to the Contractor specifying the date upon which such termination shall become effective and the extent to which performance of the Contract shall be terminated. Such termination shall be effective on the date and to the extent specified in said notice.

(2) Upon receipt of a notice of termination, and except as otherwise directed in writing by the Fund, the Contractor shall:

- a. Discontinue all work and the placing of all orders for materials and facilities otherwise required for the performance thereof,
- b. Cancel all existing orders and subcontracts to the extent such orders and subcontracts relate to the

performance of work terminated by the notice of termination;

- c. Take such action as may be necessary to secure to the Fund the benefits of any rights of the Contractor under orders or subcontracts which relate to the performance of work terminated by the notice of termination, including, but not limited to, the assignment to the Fund, in the manner and to the extent directed by the Fund, all the right, title and interest of the Contractor under the orders or subcontracts so terminated and cancelled. In the event of such assignment, the Fund shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination and cancellation of such orders and subcontracts;
- d. Transfer title and deliver to the Fund, in accordance with the direction of the Fund, all materials, supplies, work in process, facilities, equipment, machines or tools produced as a part of or acquired by the Contractor in connection with the work terminated by said notice, and all plans, Drawings, Working Drawings, sketches, Specifications and information for use in connection therewith; provided, however, that the Contractor may retain any of the foregoing if it so elects and foregoes reimbursement therefor;
- e. Take such action as may be necessary or as the Consultant or the Fund may prescribe for the protection and preservation of all property in the possession or control of the Contractor in which the Fund, under the provisions of the Contract, has or may acquire an interest.

(3) Notwithstanding the foregoing, should the notice of termination relate to only a portion of the work covered by the Contract, the Contractor will proceed with the completion of such portions of the work as are not terminated.

(4) The Fund will pay and the Contractor shall accept, in full consideration for the performance and completion of the portions of the work as are not terminated, a sum calculated by determining the percentage the portions of the work not terminated bear to the total amount of the work covered by the Contract, and by multiplying the Contract consideration by such percentage - the product thereof being the amount to be paid to the Contractor. The Fund shall determine the amount of such consideration in accordance with the foregoing.

(5) Upon compliance by the Contractor with the foregoing provisions of this Section and subject to

deductions for payments previously made, the Fund, for the portions of the work terminated, shall compensate the Contractor as follows:

- a. By reimbursing the Contractor for actual expenditures made with respect to such work, including expenditures made in connection with any portion thereof which may have been completed prior to termination, as well as expenditures made after termination in completing those portions of the work covered by the Contract which the Contractor may have been required by the notice of termination to complete. The Fund shall determine the allowability and amount of such expenditures.
- b. By reimbursing the Contractor for all actual expenditures made, with the prior written approval of the Fund or pursuant to a court judgment, in settling or discharging any outstanding contractual obligations or commitments incurred or entered into by the Contractor in good faith with respect to the Contract and resulting from the termination thereof.
- c. By reimbursing the Contractor for all actual expenditures made after the effective date of the notice of termination resulting from or caused by the Contractor taking necessary action or action prescribed by the Consultant or the Fund for the protection and preservation of all property in the possession or control of the Contractor in which the Fund, under the provisions of the Contract, has or may acquire an interest.
- d. By paying the Contractor a markup, which is to be calculated in the same manner as that provided for in subdivision c of paragraph (1) of Sections 4.02 and 4.05A for extra work, on the foregoing expenditures, which markup is to cover the Contractor's overhead and profit; provided, however, that if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, said markup shall be reduced by one-third.

(6) The sum of all amounts payable under this Section, plus the sum of all amounts previously paid by the Fund under the provisions of the Contract, shall not exceed the amount of the Contract consideration. In no event shall the Contractor be entitled to any payment for loss of anticipated profits on uncompleted work and the Fund shall not be liable for same.

(7) Termination by the Fund under the provisions of this Section shall be without prejudice to any claims

or rights which the Fund may have against the Contractor. The Fund may retain from the amount due to the Contractor under the provisions of this Section such monies as may be necessary to satisfy any claim which the Fund may have against the Contractor in connection with the Contract; provided, however, that the Fund's failure to retain such monies shall not be deemed a waiver of any of its rights or claims against the Contractor.

(8) Notwithstanding the foregoing, where the Contractor and the Consultant can agree upon another method of determining the amount of the consideration to be paid to the Contractor under the provisions of this Section, such method, subject to the approval of the Fund, may, at the option of the Fund, be substituted for the method set forth above.

Article III Time of Performance

Section 3.01 Commencement, Prosecution and Completion of Work

(1) The Contractor agrees that it will begin the work herein embraced upon receipt of the Notice to Proceed, unless the Fund consents, in writing, to begin at a different date, and that it will prosecute the same with such diligence that all work covered by the Contract shall be substantially completed and performed on or before the time specified on page A-1 of the Agreement.

(2) The Contractor further agrees that time is of the essence in this Contract and that all the Work shall be prosecuted in such manner and with sufficient plant and forces to complete all Work timely.

Section 3.02 Time Progress Schedule

(1) To show compliance with the requirements of Section 3.01 of the Agreement, provide and maintain a Time Progress Schedule in accordance with the General Requirements, Special Conditions, Section paragraph titled "Project Schedule". Unless otherwise accepted by the Fund, the Time Progress Schedule shall be strictly adhered to by the Contractor. The time for substantial completion shall be on or before the time specified on page A-1 of the Agreement.

(2) If through the fault of the Contractor or any subcontractor the Contractor shall fail to adhere to the time progress schedule, it must promptly adopt such other and additional means and methods of construction as will make up for the time lost and will assure completion in accordance with such schedule.

(3) The failure of the Contractor to submit a Time Progress Schedule, the Fund's or the Consultant's acceptance of the Contractor's time progress schedule or lack of such acceptance, the means and/or methods of construction employed by the Contractor, including any revisions thereof, and/or its failure to revise the same shall not relieve the Contractor of its obligation to accomplish the result required by the Contract in the time specified on page A-1 of the Agreement, nor shall the exercise of the Consultant's or the Fund's right to reject any portion of the work, create or give rise to any claim, action or cause of action, legal, equitable or otherwise, against the Consultant or the Fund.

(4) The failure of the Contractor to submit and maintain a Time Progress Schedule in accordance with the General Requirements shall be deemed to be a waiver by the Contractor of all claims for additional compensation or damages as a result of any condition which is an alleged cause of delay in the completion of the work.

Section 3.03 Time Progress Schedule for Shop Drawings and Samples

The Contractor shall include activities for preparation and submission of all Shop Drawings, mock-ups and Samples in the Time Progress Schedule in Section 3.02.

Section 3.04 Notice of Conditions Causing Delay

(1) Within ten (10) working days after the commencement of any condition which is causing or may cause delay in completion or require Contractor to request an extension of time, the Contractor must notify the Consultant and the Fund in writing of the effect, if any, of such condition upon the Time Progress Schedule, and must state why and in what respects, if any, the condition is causing or may cause such delay.

(2) Contractor agrees that an express condition precedent to Contractor's entitlement to any extension of time on the project shall be full and complete compliance to the satisfaction of the Fund with the Contractor's obligations in Section 3.06, Contractor's Progress Reports. Failure to submit proper Contractor's progress reports in appropriate and timely fashion shall be deemed a waiver and relinquishment of any right, claim or privilege to obtain an extension of time for the performance of the Contractor's work.

(3) Failure to strictly comply with this requirement may, in the discretion of the Fund, be deemed sufficient cause to deny any extension of time on account of delay in completion arising out of or resulting from any change, extra work, suspension, or other condition.

(4) Except as otherwise set forth in this Section 3.04 all procedures set forth in Sections 2.02 and 2.03 of this Agreement shall be complied with by the Contractor. Furthermore, full and complete compliance with the requirements of this Article III is a condition precedent to the Contractor's entitlement to receive an extension of time.

Section 3.05 Extension of Time

(1) Within ten (10) working days after the commencement of any condition which is causing or may cause the Contractor to incur, require or otherwise need an extension of time, the Contractor shall notify the Consultant and the Fund of such condition. Full and complete compliance with this paragraph 3.05(1) is a condition precedent to the Contractor obtaining an extension of time for performance of any portion or all of its work.

(2) An extension or extensions of time for the completion of the work may be granted by the Fund subject to the provisions of this Section, but only upon written application therefor by the Contractor to the Fund and the Consultant.

(3) An application for an extension of time must set forth in detail the source and the nature of each alleged cause of delay in the completion of the work, the date upon which each such cause of delay began and ended and the number of days of delay attributable to each of such causes. It must be submitted prior to completion of the work.

(4) If such an application is made, the Contractor may be entitled to an extension of time for delay in completion of the work caused solely: (a) by the acts or omissions of the Fund, its trustees, officers, agents or employees; or (b) by the acts or omissions of other contractors, not including subcontractors of the Contractor, on this Project; or (c) by unforeseeable supervening conditions entirely beyond the control of either party hereto (such as, but not limited to, acts of God or the public enemy, war or other national emergency making performance temporarily impossible or illegal, or strikes or labor disputes).

(5) The Contractor may, however, be entitled to an extension of time for such causes only for the

number of calendar days of delay which the Fund may determine to be due solely to such causes, and then only if the Contractor shall have strictly complied with all of the requirements of this Section and Section 3.04. The Fund shall make such determination within ninety (90) calendar days after receipt of the Contractor's application for an extension of time; provided, however, said application complies with the requirements of this Section.

(6) The Contractor shall not be entitled to receive a separate extension of time for each one of several causes of delay operating concurrently, but, if at all, only for the actual period of delay in completion of the work as determined by the Fund, irrespective of the number of causes contributing to produce such delay. If one of several causes of delay operating concurrently results from any act, fault or omission of the Contractor or of its subcontractors or material-men and would of itself (irrespective of the concurrent causes) have delayed the work, no extension of time will be allowed for the period of delay resulting from such an act, fault or omission.

(7) The granting of an application for an extension of time for causes of delay other than those herein referred to shall be entirely within the discretion of the Fund.

(8) If the Contractor shall claim to have sustained any damages by reason of delays, extraordinary or otherwise, or hindrances which it claims to be due to any action, omission, direction or order by the Fund or the Consultant, the Contractor shall be entitled only to an extension of time as hereinabove provided and shall not have or assert any claim or prosecute any suit, action, cause of action or proceeding against the Fund based upon such delays or hindrances, unless such delays or hindrances were caused by the Fund's bad faith or its willful, malicious, or grossly negligent conduct, or un contemplated delays, or delays so unreasonable that they constitute an intentional abandonment of the Contract by the Fund, or delays resulting from the Fund's breach of a fundamental obligation of the Contract.

(9) The Contractor shall not be entitled to an extension of time for the performance of any or all of the Work set forth in allowances to the Contract. All allowance work shall be performed in accordance with the Contractor's schedule.

Section 3.06 Contractor's Progress Reports

After commencement of the work the Contractor shall furnish the Consultant with written monthly reports

setting forth the condition and progress of the work, the percentage of each part of the work that has been finished, those parts of the work which have been completed within the scheduled time and those parts of the work which have not been finished within the scheduled time, and the general progress of the work that is being performed away from the site and the approximate date when such work will be finished and delivered to the site. Contractor agrees that compliance with this Section 3.06 is an express condition precedent to the Contractor's right, claim or entitlement to obtain an extension of time for the performance of the Contractor's work. Failure to comply with this Section 3.06 shall be a waiver and relinquishment of all such rights, claims and privileges to request or obtain an extension of time for the performance of Contractor's work.

Article IV Payment

Section 4.01 Compensation to Be Paid Contractor

The Fund shall pay to the Contractor and the latter shall accept as full and complete payment for the performance of this Contract, subject to additions or deductions as provided herein, the sum of

which sum is the amount of the Contract consideration.

Section 4.02 Value of Omitted and Extra Work

(1) The amount by which the Contract consideration is to be increased or decreased by any Change Order or Field Order shall be determined by the Fund by one or more of the following methods:

- a. By applying the applicable price or prices set forth on the attached Schedule "I" of this Agreement or by applying a unit price agreed to by both parties. Subject to the provisions of Section 4.04, this method must be used if the Contract Documents contain applicable unit prices.
- b. By estimating the fair and reasonable cost of: (i) labor, including all wages, required wage supplements and insurance required by law (workers' compensation, social security, disability, unemployment, etc.) paid to or on behalf of foremen, workers and other employees below the rank of superintendent directly employed at the site of the Project; (ii) materials; and (iii) equipment, excluding hand tools, which, in the judgment of the Fund, would have been or will be employed exclusively and directly on the omitted

work or extra work, as the case may be; and, in the case of extra work, where the same is performed directly by the Contractor, by adding to the total of such estimated costs a sum equal to 15 percent thereof, but, where the extra work is performed by a subcontractor, by adding a sum equal to 15 percent of said costs for the benefit of such subcontractor, and by adding, for the benefit of the Contractor (no further allowance will be made where extra work is performed by the sub-subcontractor), an additional sum equal to 10 percent of the first \$10,000 of the above-estimated costs, including the subcontractor's percentage override, plus 5 percent of the next \$90,000 of the total of said items, plus 3 percent of any sum in excess of \$100,000 of the total of said items. There is no markup on the premium portion of overtime labor. For the purposes of the aforesaid percentage overrides, the words "extra work" shall be defined as a complete item of added, modified or changed work as described in the Consultant's written instructions to the Contractor. Such "extra work" may include the work of one or more trades and/or subcontractors or sub-subcontractors and shall include all labor, materials, plant, equipment, tools and all incidentals directly and/or indirectly necessary, related, involved in or convenient to the successful completion of the extra work item. Where the Consultant's aforesaid written instructions to the Contractor involve both an increase and a reduction in similar or related work, the above percentage overrides will be applied only on the amount, if any, the cost of the increased work exceeds the cost of the reduced work.

No overhead and profit shall be retained by the Contractor on the cost of work determined by the method provided in Subparagraph (1)a.

All profit, overhead and expense of whatsoever kind and nature, other than those set forth above in items (i) through (iii), of the Contractor, its subcontractors and sub-subcontractors, are covered by the aforesaid percentage overrides and no additional payment therefor will be made by the Fund.

The Fund may make such cost estimate either before or after the extra work is completed by the Contractor.

- c. By determining the actual cost of the extra work in the same manner as in the above subdivision b except that actual costs of the Contractor shall be utilized in lieu of estimated costs. The Fund shall

have the option to utilize this method provided it notifies the Contractor of its intent to do so prior to the time the Contractor commences performance of such extra work.

(2) Irrespective of the method used or to be used by the Fund in determining the value of a Change Order or Field Order, the Contractor, within fifteen (15) working days after a request for the same, must submit to the Fund and the Consultant a detailed breakdown of the Contractor's estimate of the value of the omitted and/or extra work. All change and field orders must be prepared and submitted using the Fund's Open Item Log (OIL) System.

(3) Equipment Watch Rental Rate Blue Book (published online by Intertec Penton Media, Inc.) or other published rates as approved by the Fund in writing, will be utilized for the equipment rental pricing. For the purposes of paragraph (1) hereof, the cost of equipment shall be determined, irrespective of the actual price for any rental or actual cost associated with such equipment as follows: take the monthly rate listed in Equipment Watch and dividing the same by 176 hours to establish an hourly rate and then multiplying such hourly rate by the actual number of hours that the equipment was used. The Contractor will submit an actual rental invoice, or acceptable quotation from a bonafide equipment rental supplier for rented equipment when equipment is not owned by the Contractor. The equipment rental supplier cannot be an "affiliate" of the Contractor, nor in any way be related to the Contractor. If submitted invoices/quotations are acceptable to the Fund, the Contractor will be reimbursed the actual rental cost including sales tax and appropriate mark-up. If no listing of rates for an item of equipment is contained in Equipment Watch, the Fund shall determine the reasonable rate of rental of the particular item of equipment by such other means as it finds appropriate. The edition Equipment Watch to be used shall be that in effect on the date of the receipt of bids for this Contract. None of the provisions of Equipment Watch shall be deemed referred to or included in this Contract excepting only the aforesaid monthly rates. To the cost of equipment as determined above, there is to be added the actual cost of gasoline, oil, grease and maintenance required for operation of such equipment and, in the case of equipment utilized only for extra work when, in the opinion of the Consultant, suitable equipment therefor was not available on the site, the reasonable cost of transporting said equipment to and from the site. Notwithstanding the foregoing, if the Consultant should determine that the nature or size of the equipment used by the Contractor in connection with the extra work is larger or more

elaborate, as the case may be, than the size or nature of the minimum equipment determined by the Consultant to be suitable for the extra work, the cost of equipment will not be based upon the equipment used by the Contractor but instead will be based on the smallest or least elaborate equipment determined by the Consultant to have been suitable for the performance of the extra work.

(4) Unless otherwise specifically provided for in a Change Order or Field Order, the compensation specified therein for extra work includes full payment for both the extra work covered thereby and for any damage or expense caused the Contractor by any delays to other work to be done under the Contract resulting from or on account of said extra work, and the Contractor waives all rights to any other compensation for said extra work, damage or expense.

Section 4.03 Adjustment for Bond and Insurance Premiums

Upon final acceptance of the work to be performed under this Contract, the Fund may adjust the Contract consideration to reflect any changes in the cost of all required Bonds and liability and builder's risk insurance premiums which the Contractor had to pay for on all extra work and would have had to furnish and pay for on all omitted work. Unless such cost is agreed upon by the Fund and the Contractor, the Fund may calculate and determine the amount of the adjustment in the Contract consideration by estimating such costs. There is no markup on bond or insurance premium adjustment.

Section 4.04 Unit Prices

(1) Except as otherwise provided in the second paragraph of this Section, the unit prices, set forth on the attached Schedule "I" of this Agreement, will be binding upon both the Fund and the Contractor in determining the value of omitted and/or extra work, and, in the case of extra work, such unit prices shall be deemed to include all profit, overhead and expenses of whatsoever kind and nature of the Contractor, its subcontractors and sub-subcontractors, and the Contractor agrees that it shall make no claim for any profit, overhead, expense or percentage override in connection therewith.

(2) Where said Schedule "I" sets forth a unit price for added and/or deducted work, the Fund shall have the option, whenever it is found that the quantity of changed work varies by more than 15 percent from the quantity that is stated or that can be determined by the

Contract Documents at the time of execution thereof, to accept or reject such unit price for the quantity that the changed work varies by more than 15 percent from the stated or determinable quantity. Where a quantity is not specifically stated in the Contract Documents, the Fund's determination of the amount of said quantity included in the Contract Documents shall determine the applicability of this paragraph. Where the Fund, pursuant to the foregoing provisions, exercises its aforesaid option, the amount of the increase or decrease in the Contract consideration for the quantity of work which varies by more than 15 percent from the stated or determinable quantity shall be determined in accordance with the provisions of Section 4.02 of the Agreement as if there was no unit price therefor set forth in said Schedule "I".

Section 4.05 Allowances

(1) The Contractor acknowledges that the Contract consideration includes the allowances set forth on the attached Schedule "II" and "III" of this Agreement and, except for quantitative and field order allowances, it agrees to cause the work covered thereby to be done by such contractors for such sums as the Fund may direct. Where cash allowances are provided, the allowances shall be deemed to include the purchase of the materials and/or equipment and the delivery of same to the job site. Unless otherwise specified in the Contract Documents, cash allowances do not include the proper installation of the materials and/or equipment or the connection for final utilities thereto; the cost of said installation and/or connection having been included in the amount of the Contract consideration.

(2) The Contractor acknowledges that the Contract consideration includes such sums for expenses and profit on account of cash allowances as it deems proper and that it shall make no claim for expenses or profit or any percentage override in addition thereto; said items having been included in the amount of the Contract consideration.

(3) In the event any of the cash allowances listed below are either higher or lower than the cost of having the work done in accordance herewith, the Contract consideration shall be adjusted to reflect such variance, the amount of said adjustment to be the difference between the amount of the allowance and the actual cost of performing the work covered thereby.

(4) When quantitative allowances are provided, progress payments thereof to the Contractor will be based upon the applicable unit prices set forth on the

attached Schedule "I" of the Agreement, subject, however, to the provisions of paragraph (2) of Section 4.04. In the event any of said quantitative allowances are more than or less than the actual quantity of work performed, the Contract consideration shall be adjusted to reflect such variance, the amount of said adjustment to be determined in accordance with the provisions of Sections 4.02, 4.04 and 4.05A of the Agreement.

Section 4.05A Field Orders

When the Agreement contains a Field Order Allowance, the bid shall include the amount of such allowance. Said amount shall cover the cost of additional labor, materials and time for contingent activities within the scope of the Agreement as directed and described by the Fund in writing in a Field Order. The Field Order will include a description of the work and the method for determining the value of such work. The value of the work directed under this allowance will be determined by one or more of the provisions of Section 4.02. If the net cost(s) of all Field Orders issued are more or less than the specified amount of the allowance, the Contract sum will be adjusted by Change Order.

Section 4.06 Deductions for Unperformed and/or Uncorrected Work

(1) Without prejudice to any other rights, remedies or claims of the Fund, in the event that the Contractor at any time fails or neglects to supply working forces and materials of the proper quantity and quality necessary, in the opinion of the Consultant or the Fund, to comply with the approved time progress schedule, or fails in any respect to prosecute the work with promptness and diligence or causes by any action or omission the stoppage or delay of or interference with the work of any other contractor having a contract with the Fund, or fails in the performance of any obligations and responsibilities under this Contract, then, and in that event, the Fund, acting itself or through the Consultant, may, upon three (3) working days' notice to the Contractor, either itself provide or have any other contractor, including but limited to the Fund's Job Order Contracting Program, provide any and all labor or materials or both necessary, in its opinion, to correct any aforesaid deficiency of the Contractor, and the Fund will thereafter backcharge the Contractor by issuing a Change Order reducing the amount of the Contract consideration for all costs and expenses it incurs in connection with the correction of such deficiency. The Contractor agrees that the Fund may deduct from any application for payment made by the Contractor, any

and all Design Professional, Consultant and/or Construction Management fees and costs incurred by the Fund together with a markup upon such hard costs in the amount of 15% for services required in connection with the correction of such deficiency(ies).

(2) Notwithstanding any provisions in the Contract Documents to the contrary, if the Fund deems it inexpedient to correct work not done in accordance with the Contract or any work damaged as a result thereof, it shall notify the Contractor of such fact and the latter shall not remedy or correct the same. In such event, however, the amount of the Contract consideration shall be decreased by an amount, determined by the Fund, which is equal to the difference in value of the work as performed by the Contractor and the value of the work had it been satisfactorily performed in accordance with the Contract or which is equal to the cost of performing the corrective work, whichever shall be the higher amount.

Section 4.07 Liquidated Damages

In the event that the Contractor shall fail to substantially complete all the work within the time fixed for such completion on page A-1, or within the time to which such completion may have been extended or in the event that the Contractor abandons the work and the same is not substantially completed within the aforesaid time for such completion, the Contractor must pay to the Fund as damages for each calendar day of delay in completing the work the amount set forth on page A-1. In view of the difficulty of accurately ascertaining the loss which the Fund will suffer by reason of delay in completion of the work hereunder, said sum is hereby fixed and agreed as liquidated damages which the Fund will suffer by reason of such delay and not as a penalty. The Fund may deduct and retain out of the monies which may become due hereunder to the Contractor the amount of any such liquidated damages and, in case the amount which may become due to the Contractor under the provisions of the Contract may be less than the liquidated damages suffered by the Fund, the Contractor shall pay the difference, upon demand, to the Fund.

Section 4.08 Contract Breakdown

Prior to the submission of its first application for a progress payment, the Contractor shall present to the Fund and the Consultant for their approval a detailed schedule showing the breakdown of the Contract consideration. The Contract Breakdown Summary shall be further broken down on separate Fund provided forms as required by the Consultant and the

Fund. Contract Breakdown Summary and supporting forms shall be able to interface with the Fund's electronic payment system. Such schedule must contain the amount estimated for each part of the work and quantity survey for each part of the work. It shall also list the estimated value of the Contractor's guarantee obligations under the provisions of the Contract Documents, which is hereby fixed at \$5,000 or one-half of one percent (1/2%) of the Contract award amount, whichever is the lesser sum. Such schedule shall be revised by the Contractor until the same shall be satisfactory to the Fund and the Consultant and shall not be changed after the Fund and the Consultant have approved the same. The amounts set forth in the schedule will not be considered as fixing the basis for additions to or deductions from the Contract consideration.

Section 4.09 Prompt Payment Requirements

(1) For the purposes of Article XI-A of the State Finance Law, the Controller's Office of the State University Construction Fund, whose mailing address is The H. Carl McCall SUNY Building, 353 Broadway, Albany, New York 12246, is the Fund's designated payment office. Applications for payment must contain the approval of the Consultant before being submitted to the Fund.

(2) Whenever the Consultant's approval of an application for payment is required under the Contract, the Consultant shall have fifteen (15) calendar days, after receipt of such application, to inspect the work before acting on the application.

(3) Until such time that the Contract is approved by the Fund, the thirty (30) day period, referred to in Article XI-A of the State Finance Law for the payment of invoices without interest, shall not begin.

Section 4.10 Progress Payments

(1) Unless otherwise provided in the Contract, progress payments will be made as the work progresses upon applications submitted by the Contractor and approved by the Consultant and the Fund. Payment of such approved applications shall be made by the Fund within thirty (30) days after such approval has been given.

(2) The Fund shall make progress payments to the Contractor on the basis of such approved applications, less an amount equal to 5 percent thereof, plus an amount necessary, in the Fund's judgment, to satisfy any claims, liens or judgments against the Contractor which have not been suitably

discharged, , together with any back charges and offsets which are deemed necessary or likely to be incurred by the Fund as a result of any failure by the Contractor to fully, completely, accurately and timely perform its work, which it shall reserve from each such payment until all of the work covered by the Contract has been completed.

(3) When the Fund and the Consultant have determined that all the work is substantially completed, or that a substantial portion of the permanent construction has been completed and accepted, the Fund shall make a progress payment to the Contractor, on the basis of an application submitted by the Contractor and approved by the Consultant and the Fund, which shall reduce the unpaid amount due to the Contractor under the terms of the Contract, including all monies retained by the Fund from previous progress payments to the Contractor, to an amount equal to two (2) times the cost, estimated by the Consultant, of performing, in accordance with the Contract, all uncompleted, unaccepted and corrective work, plus an amount necessary, in the Fund's judgment, 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 Fund shall make progress payments to the Contractor, on the basis of applications submitted by the Contractor and approved by the Fund and the Consultant, covering said items of work less an amount necessary, in the Fund's judgment, to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged.

Section 4.11 Applications for Progress Payments

The Contractor shall prepare all applications for progress payments for work performed, together with supporting data and computations as are deemed necessary by the Consultant to determine the accuracy of the application. The application for payment and all required supporting documentation shall be submitted using the Fund's prescribed forms and electronic payment system. The Contractor shall include with such applications reports detailing actual payments to minority and women-owned businesses who participate on Fund projects. Failure of the Contractor to submit applications for progress payments, or lack of complete and accurate supporting data, shall be sufficient reason for withholding payment until such omissions or errors are rectified. Unless otherwise directed, such applications, signed and certified as correct by the Contractor, shall be delivered by the Contractor to the

Consultant once each month showing the total value of work completed and in place on the last day of the payment period covered by the application.

Section 4.12 Progress Payments for Materials Delivered to Site

(1) Progress payments made in accordance with Section 4.10 shall include a payment for materials and equipment to be furnished and installed under the Contract, after such materials and equipment have been delivered and accepted at the site of the work.

(2) Materials and equipment for which such progress payment has been made shall not be removed from the site, shall be stored until incorporated into the work in a location approved by the Consultant and shall be adequately protected from fire, theft and vandalism, the effects of the elements and any other damage whatsoever, and shall at all times be available for inspection by the Consultant and the Fund.

Section 4.13 Transfer of Title to Materials Delivered to Site

Title to all supplies and materials to be furnished or provided by the Contractor to the Fund pursuant to the provisions of the Contract Documents shall immediately vest in and become the sole property of the Fund upon delivery of such supplies and materials to the site. Notwithstanding such transfer of title, the Contractor shall have the full continuing responsibility to install such materials and supplies, protect them, maintain them in proper condition and forthwith repair, replace and make good any damage thereto without cost to the Fund until such time as the work covered by the Contract is fully accepted by the Fund. Such transfer of title shall in no way affect any of the Contractor's obligations under the Contract. In the event that, after title has passed to the Fund, any of such supplies and materials are rejected as being defective or otherwise unsatisfactory, title to all such supplies and materials shall be deemed to have been transferred back to the Contractor.

Section 4.14 Progress Payments for Materials Stored Off Site

(1) Progress payments made in accordance with Section 4.10 shall include a payment for materials and equipment which are in short and/or critical supply or have been specially fabricated for the Project. Materials and equipment, for which a progress payment is made pursuant to the preceding sentence, shall be stored by the Contractor, after fabrication, until

such time as their delivery to the site is required, at a facility and location approved by the Consultant; shall be adequately protected from fire, theft and vandalism, the effects of the elements and any other damage whatsoever; and shall at all times be available for inspection by the Consultant and the Fund. No progress payment shall, however, be made for said materials and equipment until:

- a. The Contractor furnishes to the Fund a bill of sale listing quantity and costs of said materials and equipment f.o.b. point of origin;
- b. The Consultant shall have inspected said materials and equipment and recommended payment therefor; and
- c. The Contractor furnishes to the Fund a builder's risk insurance policy, with the broad form extended coverage endorsement, for said materials and equipment, in an amount equal to 100 percent of the value thereof, which policy shall be maintained, at the sole cost and expense of the Contractor, until said materials and equipment have been incorporated into the Project. The said insurance policy shall contain a provision that the loss, if any, is to be made adjustable with and payable to the Fund as trustee for the insured, i.e., the Fund and the Contractor, and a provision that it shall not be changed or cancelled and that it will be automatically renewed upon expiration and continued in force unless the Fund is given thirty (30) days written notice to the contrary.
- d. The Contractor shall develop and provide a preventive maintenance log for stored equipment when determined appropriate by the Consultant. The Contractor shall provide timely notification and opportunity for the Consultant and the Fund to view the Contractor's preventative maintenance efforts.

(2) Materials and equipment for which a progress payment has been made by the Fund pursuant to this Section shall be, become and remain the sole property of the Fund; provided, however, that the Contractor shall have the full continuing responsibility to install such materials and equipment, to deliver it to the site, to protect it, to maintain it in proper condition and to forthwith repair, replace and make good any damage thereto without cost and/or additional time to the Fund until such time as the work covered by the Contract is fully accepted by the Fund. Such transfer of title shall in no way affect any of the Contractor's obligations under the Contract.

Section 4.15 Withholding of Progress Payments

Notwithstanding anything contained in the Contract to the contrary, the Fund may withhold payment of all or any part of a progress, final or guarantee payment, in such an amount as it may deem proper to enforce the provisions of the Contract and to satisfy the claims of third parties, when:

- a. The Fund shall learn of any claim, of whatsoever nature or kind, against the Fund or the Contractor, which in any way arises or is alleged to arise out of or as a result of or in connection with the performance by the Contractor of the work covered by the Contract or out of or in connection with the Contractor's operations or performance at or in the vicinity of the construction site, that, in the opinion of the Fund, may not be adequately covered by insurance.

If an action on such claim is timely commenced and the liability of the Fund and/or the Contractor shall have been established therein by a final judgment of a court of competent jurisdiction, or if such claim shall have been admitted by the Contractor to be valid, the Fund shall pay such judgment or admitted claim out of the monies retained by it under the provisions of the Contract and return the balance, if any, without interest, to the Contractor.

The Fund may withhold from the Contractor any payments retained by it until such time as all such claims are either satisfied or barred by law from being presented. At such time the Fund, upon written demand by the Contractor, shall return to the Contractor the amount so withheld, without interest.

- b. The Contractor has not complied with any lawful or proper direction of the Consultant or the Fund or their representatives concerning the work covered by the Contract or the performance of the Contract or the production of records as required under the provisions of the Contract.
- c. There exists any of the conditions, listed in Section 2.26, which would allow the Fund to declare the Contractor in default of the whole or any part of the work.
- d. The Contractor is a foreign contractor and has not furnished satisfactory proof that all taxes due by such Contractor under the provisions of the Tax Law have been paid. The Certificate of the New

York State Tax Commission to the effect that all such taxes have been paid shall be conclusive proof of the payment of such taxes. The term "foreign contractor" as used herein means, in the case of an individual, a person who is not a resident of the State of New York; in the case of a partnership, one having one or more partners not a resident of the State; and in the case of a corporation, one not organized under the laws of the State of New York.

- e. The Contractor, upon request of the Fund at any time after the initial progress payment by the Fund to the Contractor, fails to furnish the Fund with such documentary evidence that the Fund may deem necessary to prove to it that material and labor paid for by the Fund under previous applications for payment submitted have been paid for by the Contractor and that there are no outstanding claims or liens in connection therewith or fails to satisfy the Fund that the Contractor, with good cause, has sufficiently provided for the payment and/or satisfaction of claims for said material and labor.

Section 4.16 Lien Law

The attention of the Contractor is specifically called to the provisions of the Lien Law of the State of New York, wherein funds received by a Contractor for a public improvement are declared to constitute trust funds in the hands of such Contractor to be applied first to the payment of certain claims.

Section 4.17 Substitution of Securities for Retainage

Any time after 50 percent of all the work has been completed, the Fund, if the progress and performance of the work is satisfactory to it, on request of the Contractor, will allow the Contractor to withdraw up to 50 percent of the aforesaid amount retained by the Fund by depositing with the Comptroller of the State of New York government securities, of the type and kind specified in Section 139 of the State Finance Law, having a market value not exceeding par, at the time of deposit, equal to the amount so withdrawn. The Comptroller of the State of New York shall, from time to time, collect all interest or income on the obligations so deposited, and shall pay the same, when and as collected, to the Contractor. If the deposit be in the form of coupon bonds, the coupons as they respectively become due shall be delivered to the Contractor; provided, however, that the Contractor shall not be entitled to interest or coupons or income on any of the deposited securities, the proceeds of

which have or will be used or applied by the Fund. In the event that the Contractor does not, in accordance with the terms and provisions of the Contract, comply with and fulfill all of its obligations and responsibilities thereunder, the Comptroller of the State of New York shall have the right to sell, assign, transfer or otherwise dispose of the aforesaid securities and the Fund shall have the right to use and apply all or any part of the monies obtained by the Comptroller of the State of New York from such a sale, assignment, transfer or disposition or from the collection of interest or income from said securities to the performance and fulfillment of said obligations and responsibilities. Notwithstanding the foregoing, when the Fund makes a payment under Section 4.10 (3) of the Agreement, it will return to the Contractor, as part of such payment, its substituted securities, and thereafter all retention of the Fund shall be in funds and not in substituted securities.

Section 4.18 Final Payment

Upon acceptance of all the work, except for the Contractor's guarantee obligations under Section 2.25 of the agreement and the Contractor's guarantee obligations under any provision of the Specifications, the Contractor shall prepare and submit to the Fund and the Consultant, for their approval, a final application for payment, which the Fund, within thirty (30) days after its approval of same, shall pay. Such application and payment shall be in an amount equal to 100 percent of the Contract consideration excluding the Contractor's guarantee obligations, less:

- a. All previous payments by the Fund to the Contractor;
- b. All deductions authorized to be made by the Fund under the Contract; and
- c. An amount necessary, in the Fund's judgment, to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged.
- d. The Contractor shall not be entitled to any interest on the monies retained by the Fund pursuant to Subdivision c of Section 4.18 of the Agreement.

Section 4.19 Acceptance of Final Payment

- (1) The acceptance by the Contractor, or by any one claiming by or through it, of the final payment shall, except with respect to the amount retained by the Fund pursuant to the provisions of subdivisions b and c of Section 4.18 of the Agreement, constitute and

operate as a release to the Fund from any and all claims of any liability for anything theretofore done or furnished for or relating to or arising out of the work covered by the Contract and for any prior act, neglect or default on the part of the Fund or any of its trustees, officers, agents or employees in connection therewith.

(2) Should the Contractor refuse to accept the final payment as tendered by the Fund or should the Contractor refuse to execute the final application for payment without protest and without reserving any rights or claims against the Fund, it shall constitute a waiver of any right to interest on the amount of the payment so tendered and/or on the amount set forth in said final application for payment.

Section 4.20 Guarantee Payment

(1) Subject to the provisions of the second paragraph of this Section, at the expiration of one (1) year after the Fund has accepted all the work covered by the Contract, the Contractor shall prepare and submit to the Fund and the Consultant, for their approval, a guarantee application for payment, which the Fund, within thirty (30) days after its approval of same, shall pay. Such application and payment shall be in an amount equal to the monies retained by the Fund for the Contractor's guarantee obligations under the Agreement, less any monies deducted by the Fund under this Section. The Contractor shall not be entitled to any interest on the monies retained by the Fund pursuant to subdivision c of Section 4.18 of the Agreement.

(2) In the event the Contractor does not, in accordance with the terms and provisions of the Contract, complete all corrective work or comply with and fulfill its contractual obligations, the Fund may use and apply all or any part of the monies retained by it to have such work or obligations performed or fulfilled by a person, firm or corporation other than the Contractor. The obligations of the Contractor, under the terms and provisions of the Contract, shall not, however, be limited to the monies retained by the Fund pursuant to the provisions of the Contract.

(3) No payments may be made under this agreement for work completed more than 365 days after the completion date unless the date/duration listed on page A-1, is extended in writing by the Fund.

Section 4.21 Acceptance of Guarantee Payment

The acceptance by the Contractor or by anyone claiming by or through it, of the guarantee payment shall constitute and operate as a release to the Fund

from any and all claims in connection with monies retained by the Fund. Should the Contractor refuse to accept the guarantee payment as tendered by the Fund or should the Contractor refuse to execute the guarantee application for payment without protest and without reserving any rights or claims against the Fund, it shall constitute a waiver of any right to interest on the amount of the payment so tendered and/or on the amount set forth in said guarantee application for payment.

Section 4.22 Contractor Limited to Money Damages

Inasmuch as the Contractor can be compensated adequately by money damages for any breach of the Contract which may be committed by the Fund, the Contractor agrees that no default, act or omission of the Fund shall constitute a material breach of the Contract entitling it to cancel or rescind the same or to suspend or abandon performance thereof; and it hereby waives any and all rights and remedies to which it might otherwise be or become entitled to because of any wrongful act or omission of the Fund or its representatives, saving only its right to money damages.

Section 4.23 No Estoppel or Waiver

(1) The Fund shall not be precluded or estopped by any inspection, acceptance, application for payment or payment, final or otherwise, issued or made under the Contract or otherwise issued or made by it, the Consultant, or any trustee, officer, agent or employee of the Fund, from showing at any time the true amount and character of the work performed, or from showing that any such inspection, acceptance, application for payment or payment is incorrect or was improperly issued or made; and the Fund shall not be precluded or estopped, notwithstanding any such inspection, acceptance, application for payment or payment, from recovering from the Contractor any damages which it may sustain by reason of any failure on its part to comply strictly with the Contract and any monies which may be paid to it or for its account in excess of those to which it is lawfully entitled.

(2) Neither the acceptance of all or any part of the work covered by the Contract; nor any payment therefor; nor any order or application for payment issued under the Contract or otherwise issued by the Fund, the Consultant, or any trustee, officer, agent or employee of the Fund; nor any permission or direction to continue with the performance of the Contract before or after its specified completion date; nor any performance by the Fund of any of the Contractor's

duties or obligations; nor any aid lent to the Contractor by the Fund in its performance of such duties or obligations; nor any delay or omission by the Fund to exercise any right or remedy accruing to it under the terms of the Contract or existing at law or in equity or by statute or otherwise; nor any other thing done or omitted to be done by the Fund, its trustees, officers, agents or employees; shall be deemed to be a release to the Contractor or its sureties from any obligations, liabilities or undertakings in connection with the Contract or the Performance Bond or a waiver of any provision of the Contract or of any rights or remedies to which the Fund may be entitled because of any breach thereof, excepting only a written instrument expressly providing for such release or waiver. No cancellation, rescission or annulment hereof, in whole or as to any part of the Contract, because of any breach hereof, shall be deemed a waiver of any money damages to which the Fund may be entitled because of such breach. No waiver by the Fund of any breach of the Contract shall be deemed to be a waiver of any other or any subsequent breach.

Section 4.24 Limitation of Actions

(1) No action or proceeding shall be maintained by the Contractor, or anyone claiming under or through the Contractor, against the Fund, or its trustees, officers, agents or employees, upon any claim arising out of or based upon the Contract or any breach thereof or by reason of any act or omission or requirement of the Fund, or its trustees, officers, agents or employees, unless:

- a. Such action or proceeding is instituted in the Supreme Court of the State of New York in and for the County of Albany;
- b. The Contractor or the person claiming under or through it shall have strictly complied with all requirements relating to the giving of notices and information with respect to such claims and shall have provided the Fund with both electronic and hard copy versions of any claims, including all required information and electronic and hard copy versions of all contractually required notices that the Contractor provided to the Fund and the Consultant throughout the duration of the Contract ;
- c. Such action or proceeding by the Contractor shall be commenced within eighteen months after the date of substantial completion set by the Fund or its Consultant and issued in writing to the Contractor. Any action or proceeding not

commenced within this time frame shall be dismissed with prejudice;

- d. If the Contract is terminated or the Contractor declared in default by the Fund, such action is commenced within six (6) months after the date of such termination or declaration of default by the Fund; and
- e. All claims and disputes which are subject to or related to this Contract and the Project shall be subject to non-binding mediation, at the sole option and discretion of the Fund. Should the Fund at its sole option and in the exercise of its sole discretion elect to mediate under this clause, then a letter from the Fund indicating the completion of such mediation shall be a condition precedent to any litigation by Contractor against the Fund or the State of New York. In the absence of the Fund exercising its right to proceed to mediation, the condition precedent to any litigation against the Fund of the State of New York, shall be a letter citing that the Fund declines its rights under this clause. The costs of any mediation shall be paid equally by the parties to the mediation.

(2) Notwithstanding anything in the laws of the State of New York to the contrary, the Contractor, or anyone claiming under or through the Contractor, shall not be entitled to any additional time to begin anew any other action if an action commenced within the times herein specified is dismissed or discontinued for any reason whatsoever.

Section 4.25 Electronic Payments

The Contractor shall provide complete and accurate payment applications in order to receive payment. Payment applications submitted must contain all information and supporting documentation required by the Fund. Payment for applications submitted by the Contractor shall only be rendered electronically unless payment by paper check is expressly authorized by the Fund's General Manager, in the General Manager's sole discretion, due to extenuating circumstances. Such electronic payment shall be made in accordance with ordinary State procedures and practices. The Contractor shall comply with the State Comptroller's procedures to authorize electronic payments. Authorization forms are available at the Office of the State Comptroller's website at www.osc.state.ny.us/epay/index.htm; by email at epunit@osc.state.ny.us; or by telephone at 518-474-4032. The Contractor acknowledges that it will not receive payment on any invoices submitted under this Contract if it does not comply with the State

Comptroller's electronic payment procedures, except where the Fund's General Manager has expressly authorized payment by paper check as set forth above.

Article V

Protection of Rights and Property

Section 5.01 Accidents and Accident Prevention

The Contractor shall at all times take reasonable precautions for the safety of persons engaged in the performance of the work. The Contractor shall comply fully with all applicable provisions of the laws of the State of New York and OSHA and with all valid rules and regulations thereunder. The Contractor's attention is specifically called to the applicable rules and regulations, codes and bulletins of the New York State Department of Labor.

Section 5.02 Adjoining Property

The Contractor shall be required to protect all the adjoining property and to repair or replace any such properties damaged or destroyed by it, its employees or subcontractors through, by reason of or as a result of activities under, for or related to the Contract.

Section 5.03 Emergencies

(1) In case of an emergency which threatens loss or injury to persons or property, the Contractor will be allowed to act, without previous instructions from the Consultant or the Fund, in a diligent manner, to the extent required to avoid or limit such loss or injury, and it shall notify the Consultant and the Fund immediately thereafter of the action taken by it and of such emergency. Where the Contractor has not taken action but has notified the Consultant or the Fund of an emergency which threatens loss or injury to persons or property, it shall act in accordance with the instructions and/or authorization by the Consultant or the Fund.

(2) In the event that the Contractor performs extra work in accordance with the preceding paragraph, it will be compensated therefor in accordance with the provisions of Section 4.02.

Section 5.04 Fire Safety

(1) Contractor shall comply with the General Requirements, Section paragraph titled Temporary Fire Protection.

(2) Solid fuel salamanders and heaters shall not be used by the Contractor or any of its subcontractors. All other salamanders used by the Contractor or any of its subcontractors shall require constant attendance of competent persons on each floor where in use.

(3) All temporary fabric used by the Contractor or any of its subcontractors for curtains or awnings shall be either non-combustible or flame retarded so that it will not burn or propagate flame.

Section 5.05 Risks Assumed by Contractor

(1) To the fullest extent permitted by law, the Contractor solely assumes the following distinct several risks whether they arise from acts or omissions (whether negligent or not and whether supervisory or otherwise) of the Contractor, of the Fund, of third persons or from any other cause, including unforeseen obstacles and difficulties which may be encountered in the prosecution of the work covered by the Contract, whether such risks are within or beyond the control of the Contractor and whether such risks involve a legal duty, primary or otherwise, imposed upon the Fund, the Dormitory Authority of the State of New York, the State of New York or the State University of New York, excepting only risks which arise from defects in maps, plans, designs or Specifications prepared, acquired or used by the Consultant or the Fund, from the negligence of the Fund, its agents or employees or from affirmative acts of the Fund, the Dormitory Authority of the State of New York, the State of New York or the State University of New York or their trustees, officers, agents or employees committed with intent to cause the loss, damage and injuries herein below set forth:

- a. The risk of loss or damage, direct or indirect, to the work covered by the Contract or to any plant, equipment, tools, materials or property furnished, used, installed or received by the Fund or by the Contractor or any subcontractor, material man or worker performing services or furnishing materials for the work covered hereunder. The Contractor shall bear such risk of loss or damage until the work covered by the Contract has been finally accepted by the Fund or until completion of removal of such plant, equipment, tools, materials or property from the construction site and the vicinity thereof, whichever event occurs last. In the event of such loss or damage, the Contractor shall forthwith repair, replace and/or make good any such loss or damage without cost to the Fund.
- b. The risk of claims, just or unjust, by third persons against the Contractor, the Fund, the Dormitory

Authority of the State of New York, the State of New York, or the State University of New York on account of wrongful death, bodily injuries and property damage, direct or consequential, loss or damage of any kind whatsoever arising or alleged to arise out of or as a result of or in connection with the performance by the Contractor of the work covered by the Contract (whether actually caused by or resulting from the performance of the Contract) or out of or in connection with the Contractor's operations or presence at or in the vicinity of the construction site.

(2) To the fullest extent permitted by law, the Contractor shall indemnify and save harmless the Fund, the Dormitory Authority of the State of New York, the State of New York and the State University of New York, their trustees, officers, agents or employees against all claims described above and for all costs and expenses incurred by them in the defense, settlement or satisfaction thereof, including attorneys' fees and court costs. If so directed, the Contractor shall at its own expense defend against such claims, in which event it shall not, without obtaining express advance permission from Counsel of the Fund, raise any defense involving in any way jurisdiction of the tribunal over the Fund, governmental nature of the Fund or the provisions of any statutes respecting suits against the Fund.

(3) Neither the Fund's final acceptance of the work to be performed hereunder nor the making of any payment shall release the Contractor from its obligations under this Section. The enumeration elsewhere in the Contract of particular risks assumed by the Contractor or of particular claims for which it is responsible shall not be deemed to limit the effect of the provision of this Section or to imply that it assumes or is responsible for only risks or claims of the type enumerated.

Section 5.06 Compensation and Liability Insurance

(1) General Requirements

a. Prior to the commencement of the work to be performed by the Contractor, the Contractor shall procure at its sole cost and expense, and maintain in force at all times during this Agreement until Final Payment and as further required by the Contract, policies of insurance as herein set forth below. All insurance shall be written by insurance carriers approved by the Fund, licensed to do business in the State of New York ("admitted"

carriers), and rated at least "A-" by A.M. Best Company.

- b. Prior to the commencement of the work, the Contractor shall submit to the Fund, certificates of insurance, in a form acceptable to the Fund, showing evidence of compliance with all insurance requirements contained in this Agreement. Certificates of Insurance (with the exception of Workers' Compensation and Disability) must be provided on an ACORD 25 Certificate of Insurance, or an equivalent form. Certificates of Insurance shall disclose any deductible, self-insured retention, aggregate limit or any exclusion to the policy that materially changes the coverage required by the Contract; specify the additional insureds and named insureds as required herein; and be signed by an authorized representative of the insurance carrier or producer. Deductibles or self-insured retentions above \$25,000 are subject to approval by the Fund and additional security may be required. Certificates shall reference the Contract number. Only original documents will be accepted.
- c. All insurance shall provide that the required coverage apply on a primary and not on an excess or contributing basis as to any other insurance that may be available to the Fund for any claim arising from the Contractor's work under this Agreement, or as a result of Contractor's activities. Any other insurance maintained by the Fund shall be in excess of and shall not contribute with the Contractor's insurance, regardless of the "other insurance" clause contained in the Fund's own policy of insurance. A copy of the endorsement reflecting this requirement may be requested by the Fund.
- d. Not less than thirty days prior to the expiration date or renewal date, the Contractor shall supply the Fund with updated replacement certificates of insurance and endorsements. The Contractor shall advise the Fund of any letter or notification that cancels, materially changes, or non-renews the policy and Contractor shall require the insurance carrier(s) to copy the Fund on any letter or notification that cancels, materially changes, or non-renews the policy. If, at any time during the period of the Agreement, insurance as required is not in effect, or proof thereof is not provided to the Fund, the Fund shall have the options to (i) direct the Contractor to stop work with no additional cost or extension of time due on account thereof; or (ii) treat such failure as an event of default under Section 2.26 of the Agreement. At any time the

coverage provisions and limits of the policies required herein do not meet the provisions and limits set forth in the Agreement the Contractor shall immediately cease Work on the Project. The Contractor shall not resume Work on the Project until authorized to do so by the Fund. Any delay or time lost as a result of the Contractor not having insurance required by the Agreement shall not give rise to a delay claim or any other claim against the Fund. If required by the Fund, Contractor shall deliver to the Fund within forty-five (45) days of such request, a copy of any or all policies of insurance not previously provided, certified by the insurance carrier as true and complete.

- e. Should the Contractor engage a subcontractor, the Contractor shall impose the insurance requirements of this document on those entities, as applicable. Required insurance limits should be determined commensurate with the work of the subcontractor. Contractor shall keep the subcontractor certificates of insurance on file and produce them upon the demand of the Fund.
- f. The aggregate insurance limits set forth herein shall apply separately to each contract for which a certificate of insurance and/or policy is issued.
- g. Unless otherwise agreed to in writing by the Fund, policies must be endorsed to provide that there shall be no right of subrogation against the Fund. To the extent that any of the policies of insurance prohibit such a waiver of subrogation, Contractor shall secure the necessary permission to make this waiver.
- h. Except as otherwise specifically provided herein or agreed in writing, policies must be written on an occurrence basis. The insurance policy(ies) shall name the Fund, State University of New York, State of New York, its officers, agents, and employees as additional insureds thereunder. The additional insured requirement does not apply to Workers' Compensation or Disability coverage. Include ISO Endorsement CG 20 10 11 85 or its equivalent.

(2) Specific Coverage and Limits

The Contractor shall obtain and maintain in full force and effect, the following insurance with limits not less than those described below and as required by the terms of the Contract, or as required by law, whichever is greater:

- a. Commercial General Liability Insurance. A Commercial General Liability insurance policy with coverage that shall include, but not be limited to coverage for bodily injury, property damage, personal/advertising injury, premises liability, independent contractors, blanket contractual liability including tort liability of another assumed in Contract, liability arising from all work and operations under this Agreement, defense and indemnification obligations, including those assumed under Contract, cross liability coverage for additional insureds, products/completed operations for a term no less than three years commencing upon acceptance of the work, explosion, collapse, and underground hazards, contractor means and methods, and liability resulting from Section 240 or Section 241 of the NYS Labor Law. The limits under such policy shall not be less than: \$5,000,000 each occurrence; \$5,000,000 general aggregate; and products/completed operations with an aggregate limit of \$5,000,000.
- b. Workers Compensation and Disability Benefits as required by New York State.
- c. Comprehensive Business Automobile Liability Insurance. A policy with a combined single limit for bodily injury and property damage of no less than \$1,000,000 covering liability arising out of the use of any motor vehicle in connection with the work, including owned, leased, hired, and non-owned vehicles bearing, or, under the circumstances under which they are being used, required by the Motor Vehicle Laws of the State of New York to bear license plates. If the Contract involves the removal of hazardous waste from the project site or otherwise transporting hazardous materials, pollution liability coverage for covered autos shall be provided by form CA 99 48 03 06 or CA 00 12 03 06 and the Motor Carrier Act Endorsement (MCS90) shall be attached.
- d. Umbrella and Excess Liability. When the limits of the Commercial General Liability, Auto, and/or Employers Liability policies procured are insufficient to meet the limits specified, the Contractor shall procure and maintain Commercial Umbrella and/or Excess Liability policies with limits in excess of the primary, provided, however, that the total amount of insurance coverage is at least equal to the requirements set forth above. Such policies shall follow the same form as the primary. Any insurance maintained by the Fund or additional insured shall be considered excess of and shall not contribute with any other

insurance procured or maintained by the Contractor including primary, umbrella and excess liability regardless of the "other insurance" clause contained in either party's policy.

- e. **Owner's Protective Liability Insurance.** A policy issued to and covering the liability for damages imposed by law upon the Fund, the Dormitory Authority of the State of New York, the State of New York and the State University of New York, their trustees, officers, agents or employees, with respect to all operations under the Contract by the Contractor and its subcontractors, and/or their interest in the Project and the property upon which work under the Contract is to be performed, including omissions and supervisory acts of the former. Said insurance policy limits shall be no less than \$1,000,000 each occurrence and \$2,000,000 general aggregate.
- f. **Asbestos Abatement Insurance.** A liability insurance policy issued to and covering the liability, of the Contractor and/or subcontractor engaged in the removal, handling or wrapping of asbestos, if any of such work is to be performed under the Contract, for bodily injury, illness, sickness or property damage caused by exposure to asbestos in an amount not less than \$1,000,000 per occurrence and \$2,000,000 aggregate. The Contractor and/or its aforesaid subcontractor shall either obtain an endorsement to the aforesaid required insurance policy adding the Fund, the Dormitory Authority of the State of New York, the State of New York and the State University of New York, their trustees, officers, agents or employees, as additional parties insured thereunder or shall obtain a separate owner's protective liability insurance policy for such parties with coverage similar to that required by the first sentence of this subdivision. In addition, any Contractor or subcontractor engaged in the removal, handling, or wrapping of asbestos shall, to the fullest extent permitted by law, hold harmless and indemnify the Fund, the Dormitory Authority of the State of New York the State of New York and the State University of New York, their trustees, officers, agents or employees, for any claims or liabilities in connection with illness or sickness arising from work performed, not performed, or which should have been performed. The Contractor shall have said hold-harmless and indemnification conditions stipulated in all Contracts with subcontractors.

Section 5.07 Builder's Risk

(1) The Contractor shall procure and maintain, at its own cost and expense, until final acceptance of all work covered by this Contract or until the Project has been turned over for use by the State University of New York, whichever event occurs earlier, a builder's risk insurance policy covering all risks, with fire, extended coverage, vandalism and malicious mischief coverage. In the event the loss occurs at an occupied facility, the policy shall permit occupancy without the consent of the insurance company. The policy shall cover the cost of removing debris, including demolition as may be legally necessary by operation of any law, ordinance, or regulation, and property of the State held in their care, custody and/or control.

(2) The policy shall be in an amount equal to the Project's insurable value, i.e., the Contract consideration less the cost of the Contractor's Performance and Labor and Material Bonds; the cost of trees, shrubbery, lawn grass, plants and the maintenance of the same; the cost of demolition; the cost of excavation; the cost of foundations, piers or other supports which are below the undersurface of the lowest basement floor, or where there is no basement, which are below the surface of the ground, concrete and masonry work; the cost of underground flues, pipes or wiring; the cost of earthmoving, grading and the cost of paving, roads, walks, parking lots or athletic fields; and the cost of bridges, tunnels, dams, piers, wharves, docks, retaining walls and radio and/or television towers and antennas.

(3) The policy may contain a provision for a \$500 deductible for each loss to a Project having an insurable value of less than \$1,500,000 and a \$1,000 deductible for each loss to a Project having an insurable value of \$1,500,000 or more.

(4) The Fund, the Contractor and its subcontractors, as their interests may appear, shall be named as the parties insured under said policy.

(5) The Contractor shall have the sole responsibility to promptly report any loss to the insurer and/or its representatives and to furnish the latter with all necessary details relating to the occurrence of the loss and the amount thereof. The Fund, the Contractor and all subcontractors of the Contractor waive all rights, each against the others, for damages caused by fire or other perils covered by insurance provided under the terms of this Section, except such rights as they may have to the proceeds of insurance received; provided, however, this waiver shall not apply to any

manufacturer, supplier or similar agent under any guarantee or warranty.

(6) The Contractor shall not violate or permit to be violated any condition of such policy and shall at all times satisfy the fire safety requirements of the Fund and the insurance company issuing the same.

(7) The procurement and maintenance of said policy shall in no way be construed or be deemed to relieve the Contractor from any of the obligations and risks imposed upon it by this Contract or to be a limitation on the nature or extent of such obligations and risks.

(8) Not less than thirty days prior to the expiration date or renewal date, the Contractor shall supply the Fund with an updated replacement certificate of insurance and endorsements. The Contractor shall advise the Fund of any letter or notification that cancels, materially changes, or non- renews the policy and Contractor shall require the insurance carrier(s) to copy the Fund on any letter or notification that cancels, materially changes, or non- renews the policy. Before the Contractor shall be entitled to have any progress payment rendered on account of the work which is to be insured pursuant to this Section, it shall furnish to the Fund a certificate in duplicate of the insurance herein required. Such insurance must be procured from an insurance carrier approved by the Fund, licensed to do business in the State of New York ("admitted" carrier), and rated at least "A-" by A.M. Best Company.

Section 5.08 Effect of Procurement of Insurance

Neither the procurement nor the maintenance of such insurance shall in any way affect or limit the obligations, responsibilities or liabilities of the Contractor hereunder.

Section 5.09 No Third Party Rights

Nothing in this Section or in this Agreement shall create or give to third parties, except the Dormitory Authority of the State of New York, the State of New York and the State University of New York any claim or right of action against the Contractor, the Consultant, the Fund, the Dormitory Authority of the State of New York, the State of New York and the State University of New York beyond such as may legally exist irrespective of this Section or this Agreement.

Article VI Minority and Women's Business Enterprises (MWBEs) / Equal Employment Opportunity (EEO) Provisions

Section 6.01 Definitions

The terms "Minority-owned business enterprise" ("MBE"), "Women-owned business enterprise" ("WBE") or "minority group member", and "Subcontract" shall have the same meaning as under Article 15-A of the New York State Executive Law, and 5 NYCRR Parts 140 – 145, as the same may be from time to time amended.

Section 6.02 MWBE/EEO Policy Statement

(1) The Fund recognizes the need to take affirmative action to promote the employment of minority group members and women and to ensure that Minority and Women Business Enterprises are given the opportunity to participate in the performance of its construction program. This opportunity for participation in our free enterprise system by socially and economically disadvantaged persons is essential to obtain social and economic equality and improve the functioning of the State economy. Accordingly, it is the policy of the Fund to provide for participation of minorities and women on the Project.

(2) The Contractor acknowledges its understanding of the policy herein stated and agrees to cooperate with the Fund in the implementation of this policy.

Section 6.03 Participation by Minority and Women's Business Enterprises (MWBEs)/ Equal Employment Opportunity (EEO)

(1) General Provisions

a. The Fund is required to implement the provisions of New York State Executive Law Article 15-A, 5 NYCRR Parts 140-145 of the New York Codes, Rules and Regulations ("NYCRR"), and Executive Order No. 162 dated January 9, 2017 ("E.O. 162") 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 renovation and/or construction.

- b. The Contractor agrees, in addition to any other nondiscrimination provision of the Contract and at no additional cost to the Fund, to fully comply and cooperate with the Fund in the implementation of New York State Executive Law Article 15-A, the regulations promulgated thereunder, and E.O. 162. These requirements include equal employment opportunities for minority group members and women ("EEO") and contracting opportunities for New York State certified minority and women-owned business enterprises ("MWBEs"). 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") and 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 assessment of liquidated damages pursuant to Section 7 of this Article, withholding of funds and such other remedies as may be available to the Fund pursuant to the Contract and applicable law, including but not limited to bid rejection or contract termination for cause.
- d. Contractor will include the provisions of this Article in each and every agreement, contract, and/or subcontract with each and every subcontractor and supplier in such a manner that the provisions of this Article will be binding upon each subcontractor and supplier as to work in connection with and related to this Agreement. All subcontractors and suppliers must be approved by the Fund and the MWBE Utilization plans are subject to approval by the Fund's Opportunities Program.

(2) Contract Goals

- a. For purposes of this Contract, the Fund hereby establishes goals of for New York State-certified Minority-Owned Business Enterprises ("MBE") participation and for New York State-certified Women-Owned Business Enterprises ("WBE") participation (collectively "MWBE Contract Goals") based on the current availability of MBEs and WBEs.

- i. The goal for Minority-Owned Business Enterprise participation shall be applied as follows: a maximum of one third (1/3) of the goal may be applied to purchases of materials, supplies, and equipment from MBEs.
- ii. The goal for Women-Owned Business Enterprise participation shall be applied as follows: a maximum of one third (1/3) of the goal may be applied to purchases of materials, supplies, and equipment from WBEs.

- b. For purposes of providing meaningful participation by MWBEs on the Contract and achieving the MWBE Contract Goals established in Section 2a hereof, Contractor should reference the Directory of New York State Certified MWBEs found at the following internet address: <https://www.ny.newnycontracts.com>.

Additionally, the Contractor is encouraged to contact the Fund's Opportunities Program Office. The Contractor can also reach out to the Division of Minority and Women's Business Development at (212) 803-2414 to discuss additional methods of maximizing participation by MWBEs on the Contract.

- c. The Contractor understands that only sums paid to MWBEs for the performance of a commercially useful function, as that term is defined in 5 NYCRR §140.1, may be applied towards the achievement of the applicable MWBE participation goal. The portion of a contract with an MWBE serving as a supplier, that shall be deemed to represent the commercially useful function performed by the MWBE, shall be 60 percent of the total value of the contract. The portion of a contract with an MWBE serving as a broker, that shall be deemed to represent the commercially useful function performed by the MWBE, shall be the monetary value for fees, or the markup percentage, charged by the MWBE.
- d. Where MWBE Contract Goals have been established herein, the Contractor must document "good faith efforts" pursuant to pursuant to 5 NYCRR §142.8, to provide meaningful participation by MWBE's as subcontractors and suppliers, in the performance of the Contract. Such

documentation shall include, but not necessarily be limited to:

- i. Evidence of outreach to MWBEs,
- ii. Any responses from MWBE's to the Contractor's outreach;
- iii. Copies of advertisements for participation by MWBEs in appropriate general circulation, trade and minority or women-owned publications;
- iv. The dates of attendance at any pre-bid, pre-award or other meetings, if any, scheduled by the Fund with MWBE's; and,
- v. Information describing specific steps undertaken by the Contractor to reasonably structure the Contract Scope of work to maximize opportunities for MWBE participation.

(3) Equal Employment Opportunity (EEO)

- a. The provisions of Article 15-A of the Executive Law, the rules and regulations promulgated thereunder, and E.O. 162 pertaining to equal employment opportunities for minority group members and women, shall apply to the Contract. Contractor agrees to be bound by them. In the event of any conflict, the provisions of the statute, regulations and Executive Order shall govern over any contrary provisions of this Agreement.
- b. In performing the Contract, the Contractor shall:
 - i. Ensure that the Contractor and 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.
 - ii. Within seven (7) calendar days after the opening of bids or upon receipt of a request by the Fund, the Contractor shall have

submitted an EEO policy statement to the Fund.

iii. If the Contractor or any of its sub-contractors do not have an existing EEO policy statement, the Fund may require the Contractor or subcontractor to adopt a model statement.

iv. 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.

(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) At the request of the Fund, 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 paragraphs a through c of this subdivision (iv) and paragraph e of this subsection 3 which provides for relevant provisions of the Human Rights Law, in every subcontract in such a manner that the requirements of the subdivision will be binding

upon each subcontractor as to work in connection with the Contract.

c. Staffing Plan

To ensure compliance with E.O.162, in connection with all low bids in excess of \$250,000, the Contractor shall, as a required condition of contract award, prepare and submit a staffing plan, as part of the Contractor's bid or proposal, or within a reasonable time after the bid opening or proposal submission and prior to final contract award, as directed by the Fund. The Contractor shall do so using the staffing plan form provided by the Fund, 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.

d. Monthly Workforce Utilization/Gross Wages Report

i. For each and every real property renovation and/or construction contract in excess of \$100,000, the Contractor shall, during the term of the Contract and as part of the normal course of performing the work of the Contract, submit a monthly Workforce Utilization/Gross Wages Report, and shall require each of its subcontractors to submit a Workforce Utilization/Gross Wages Report in the electronic form prescribed by the Fund on a monthly basis.

ii. Separate forms shall be completed by the Contractor and any subcontractors.

iii. Pursuant to E.O.162, in addition to required Equal Employment Opportunity (EEO) information, the Contractor and its subcontractors are also required to include in such monthly reports the job titles and gross wages paid to each of their employees for the work performed by such employees on the Contract; or for each and every member of their entire workforce, if they are unable to determine which employees are working directly on the contract for which the report is submitted.

e. Contractor shall comply with the provisions of the Human Rights Law, all other State and Federal statutory and constitutional non-discrimination provisions. Contractor and

sub-contractors 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.

(4) MWBE Utilization Plan

a. The Contractor represents and warrants that Contractor has submitted an MWBE Utilization Plan for the Fund's approval prior to the execution of the Contract and within seven (7) calendar days after receipt of a request thereof.

b. Contractor agrees to adhere to such MWBE Utilization Plan in the performance of the Contract.

c. Contractor further agrees that a failure to submit and/or adhere to such MWBE Utilization Plan may constitute a material breach of the terms of the Contract. Upon the occurrence of such a material breach, the Fund shall be entitled to any remedy provided herein, including but not limited to, a finding that the Contractor is non-responsive

(5) Waivers

If the Contractor, after making good faith efforts, is unable to achieve the MWBE Contract Goals stated herein, the Contractor may submit a request for a waiver through a method provided by the Fund. Such waiver request must be supported by evidence of the Contractor's good faith efforts to achieve the maximum feasible MWBE participation towards the applicable MWBE Contract Goals. If documentation included with the waiver request is completed, the Fund shall evaluate the request and issue a written notice of approval or denial within twenty (20) business days of receipt.

If the Fund, upon review of the MWBE Utilization Plan, the reports described in Section 6.04, or any other relevant information, 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 Fund 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.

(6) Liquidated Damages

- a. Where the Fund determines that Contractor is not in compliance with the provisions of this Article 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 Contract Goals, Contractor shall be obligated to pay liquidated damages to the Fund.
- b. Such liquidated damages shall be calculated as an amount equaling the difference between:
 - i. All sums identified for payment to MWBEs had the Contractor achieved the contractual MWBE goals; and
 - ii. 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 Fund, Contractor shall pay such liquidated damages to the Fund within sixty (60) days after they are assessed. Provided, however, that if the Contractor has filed a complaint with the Director of the Division of Minority and Woman Business Development pursuant to 5 NYCRR § 142.12, liquidated damages shall be payable only in the event of a determination adverse to the Contractor following the complaint process.

Section 6.04 Reports, Records and Documentation

- a. The Contractor shall, for each and every real property renovation and/or construction contract in excess of \$100,000, file with the Fund monthly reports in the electronic form prescribed by the Fund, regarding actions taken pursuant to this Article, as well as a list of and value of subcontracts and supply contracts.
- b. The Contractor shall permit access to its books, records and accounts by the Fund for purposes of investigation to ascertain

compliance with the provisions of this Article. The Contractor shall include this provision in every subcontract so that such provision will be binding upon each subcontractor.

- c. Failure to comply with the foregoing requirements entitles the Fund to take such action as the withholding of funds, suspension or termination of the Contract or such other actions or enforcement proceedings as allowed by the Contract. Such failure may also result in a finding of non-responsiveness, non-responsibility and/or a breach of the Contract.

**Article VII
Provisions Required by Law**

Section 7.01 Provisions Deemed Inserted

Each and every provision required by law to be inserted in the Contract, including, but not limited to, the applicable provisions set forth in Schedule "A" which is attached hereto and made a part hereof, shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein and, in the event any such provision is not inserted or is not correctly inserted, then, upon the application of either party, this Contract shall forthwith be physically amended to make such insertion or correction.

Section 7.02 Wage Rates

The Contractor shall post the appropriate prevailing wage schedules in a conspicuous place at the construction site. The Department of Labor shall provide the Contractor with posters relating to prevailing wage rates and same shall be displayed by the Contractor in a conspicuous place at the construction site. The Contractor shall also distribute wallet cards, to be provided by the Department of Labor, to all workers engaged at the construction site containing information relating to wage rates and telephone numbers to call if a worker believes his or her rights are being violated. The Contractor shall provide each worker with a written notice, informing them of the applicable prevailing wage requirements, and the Contractor must obtain a signed statement or declaration from such worker attesting to the fact that he or she has been given this information. Further, the Contractor is required to keep certified copies of its payrolls at the construction site.

Section 7.03 Iran Energy Sector Divestment

Pursuant to New York State Finance Law §165-a, Iran Divestment Act of 2012 (Act), the Office of General Services is required to post on its website a list of persons who have been determined to engage in investment activities in Iran ("prohibited entities list"), as defined by the Act. New York State Public Authorities Law § 2879-c, with certain exceptions, prohibits the Fund from entering into or awarding a Contract with persons identified on the prohibited entities list and requires that the person (as defined in paragraph (e) of subdivision one of Section 165-a of the State finance law) entering into the contract with the Fund certify, under penalty of perjury, that it is not on the prohibited entities list. By signing this Agreement with the Fund, each person (as defined in paragraph (e) of subdivision one of Section 165-a of the State finance law) and each person signing on behalf of any other party certifies, and in the case of a joint bid or partnership each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each person is not on the prohibited entities list.

Article VIII Vendor Responsibility

(1) The Contractor shall at all times during the Agreement term remain responsible. The Contractor shall provide the Fund with written notice as required by this Article of any issues impacting its responsibility, which shall minimally include updated responses to the its filed vendor responsibility questionnaire. The Contractor agrees, if requested by the Fund, to present evidence of its continuing legal authority to do business in New York State, integrity, experience, ability, prior performance and organizational and financial capacity.

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

(3) Upon written notice to the Contractor, and a reasonable opportunity to be heard with appropriate Fund officials or staff, the Contractor may be

terminated by the Fund at the Contractor's expense where the Contractor is determined by the Fund to be non-responsible. In such event, the Fund may complete the contractual requirements in any manner that the Fund may deem advisable and pursue available legal or equitable remedies for breach.

(4) In addition to the notice requirements set forth in Section 1.12 of this Agreement, the Contractor shall provide the notice required by this section as follows:

The State University Construction Fund

Attention: General Counsel
The H. Carl McCall SUNY Building
353 Broadway, Albany, NY 12246
Telephone Number: (518) 320-1748
E-mail address: Harry.McLellan@suny.edu

In no case shall termination of the Contract by the Fund be deemed a breach by the Fund thereof, nor shall the Fund be liable for any damages or lost profits or otherwise, which may be sustained by Contractor as a result of such termination.

Article IX Use of Service-Disabled Veteran-Owned Business Enterprises in Contract Performance

(1) Article 17-B of New York State Executive Law acknowledges that Service-Disabled Veteran-Owned Businesses (SDVOBs) strongly contribute to the economies of the State and the nation. As defenders of our nation and in recognition of their economic activity in doing business in New York State, the Contractor for the Project and Work defined in this Agreement, agrees to, at no additional cost to the Fund, fully comply and cooperate with the Fund's implementation of New York State Executive Law Article 17-B and provide opportunities for SDVOBs in the fulfillment of the requirements of this Agreement. SDVOBs can be readily identified on the directory of certified businesses at:

<https://ogs.ny.gov/Veterans/#1>

(2) The Contractor is strongly encouraged to the maximum extent practical and consistent with legal requirements of the State Finance Law and the Executive Law to use responsible and responsive SDVOBs in purchasing and utilizing commodities, services and technology that are of equal quality and functionality to those that may be obtained from non-SDVOBs. Furthermore, Contractors are reminded that they must continue to utilize small, minority and women-owned businesses consistent with current State law

(3) Utilizing SDVOBs in State contracts will help create more private sector jobs, rebuild New York State's infrastructure, and maximize economic activity to the mutual benefit of the Contractor and its SDVOB partners. SDVOBs will promote the Contractor's optimal performance under the Agreement, thereby fully benefiting the public sector programs that are supported by associated public procurements.

(4) Public procurements can drive and improve the State's economic engine through promotion of the use of SDVOBs by the Manager. The Fund, therefore, expects Contractors to provide maximum assistance to SDVOBs in the performance of services for this Agreement. The potential participation by all kinds of SDVOBs will deliver great value to the State and its taxpayers.

(5) For the purposes of this Agreement, the Fund hereby establishes the goal of participation for SDVOBs. For the purposes of providing meaningful participation by SDVOBs on the Agreement and achieving the Agreement Goal, the Contractor should reference the directory of New York State Certified SDVOBs at the following internet address:

<https://ogs.ny.gov/Veterans/#1>

(6) Damages – SDVOB Participation: Any Contractor who willfully and intentionally fails to comply with the SDVOB participation requirements of the SDVOB regulations set forth in 9 NYCRR Section 252, and as set forth in this Agreement, shall be liable to the Fund for damages as otherwise specified in this agreement, and shall provide for other appropriate remedies on account of such breach. Damages shall be calculated based on the actual cost incurred by the Fund related to the Fund's expenses for personnel, supplies and overhead related to establishing, monitoring and reviewing certified SDVOB enterprise programmatic goals.

(7) The Contractor is required to submit a Compliance Report to the Fund in every application for payment or by request of the Fund and such report must document the progress made towards achievement of the SDVOB goal of the Agreement.

Article X Requirement for Office of State Comptroller Review

In accordance with the Memorandum of Understanding (MOU) dated as of August 15, 2019 by and between the Governor, the Office of State

Comptroller (State Comptroller), the Fund and other entities, it was agreed that certain Fund contracts (Covered Contracts) are subject to review by the State Comptroller.

As such a Covered Contract, the State shall have no liability under this Agreement and this Agreement is not valid, effective or binding until it has been approved by the State Comptroller and filed in his or her office; provided however that if the State Comptroller does not approve or reject this Agreement within the time period specified in the MOU, then this Agreement shall be valid and enforceable without such approval.

IN WITNESS WHEREOF, the parties hereto have
executed this Agreement as of the day and year first
above written.

STATE UNIVERSITY CONSTRUCTION FUND

By _____
General Manager
Robert M. Haelen

«Company_Name»

By _____

Date: _____

If Corporation, affix Corporate Seal

SUCF Project No.

Contract No.

ACKNOWLEDGMENTS

(ACKNOWLEDGMENT BY INDIVIDUAL)

STATE OF NEW YORK)
COUNTY OF) SS:

On this _____ day of _____, 20____, 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 acknowledged to me that he executed the same.

Notary Public

(ACKNOWLEDGMENT BY PARTNERSHIP)

STATE OF NEW YORK)
COUNTY OF) SS:

On this _____ day of _____, 20____, 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 h self depose and say that he is a
member of the firm of _____ consisting of h self and

that he executed the foregoing instrument in the firm name of _____

and that he had authority to sign same, and he did duly acknowledge to me that he executed the same as the act and deed

of said firm of _____,for the uses and purposes mentioned therein.

Notary Public

(ACKNOWLEDGEMENT BY CORPORATION)

STATE OF NEW YORK)
COUNTY OF) SS:

On this _____ day of _____, 20____, before me personally came
_____, to me known, who, being by me duly sworn, did depose
and say that he/she/they reside(s) in _____; that he/she/they is (are) the
_____ (president or other officer or director or attorney in fact duly appointed) of the
_____ (name of corporation), the corporation described in and which executed
the above instrument; and that he/she/they signed his/her/their name(s) thereto by authority of the board of directors of said
corporation.

Notary Public

Appendix “A”

Standard Clauses For New York State 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, licensor, licensee, lessor, lessee or any other party; the word "State" herein refers to the State of New York and/or the State University Construction Fund "Fund"):

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 Fund 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 the Memorandum of Understanding dated as of August 15, 2019 by and between the Governor, the Office of State Comptroller ("State Comptroller"), the Fund and other entities, providing for State Comptroller review of certain contracts, any such covered contracts shall not be valid, effective or binding upon the State until either such contract has been approved by the State Comptroller or the allowed time period has passed without State Comptroller approval or rejection and such contracts are filed in his or her office.

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, 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 and the Fund shall have rights of set-off. These rights shall include, but not be limited to, the 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 or the Fund with regard to this contract or any other Fund contract, as well as 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 or the Fund for any other reason including, without limitation, tax delinquencies, fee delinquencies or monetary penalties, adjustments, fees or claims for damages. The State and the Fund 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, the Fund 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 Fund, 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 or the Fund'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 the Fund 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 Fund 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 Fund; or (ii) a written agreement in excess of \$100,000.00 whereby the Fund 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 Fund, 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 Fund 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 Fund 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. For the purposes of Article 11-A of the State Finance law, the Controller's Office of the State University Construction Fund, whose mailing address is the H. Carl McCall SUNY Building, 353 Broadway, Albany, New York 12246, is the Fund's designated payment office.

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 Fund's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Contractor must promptly notify the Fund, in writing, of each and every change of address to which service of process can be made. Service by the Fund 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
Albany, New York 12245
Telephone: 518-292-5100
Fax: 518-292-5884
email: opa@esd.ny.gov

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
New York, NY 10017
212-803-2414

email: mwb certification@esd.ny.gov
[https://ny.newnycontracts.com/FrontEnd/Vendor
SearchPublic.asp](https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.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 October 2019, 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 State Technology Law § 208) and commencing March 21, 2020 shall also comply with General Business Law § 899-bb.

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 Fund, 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 Fund 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/list-entities-determined-be-non-responsive-biddersofferers-pursuant-nys-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 Fund receive information that a person (as defined in State Finance Law § 165-a) is in violation of the above-referenced certifications, the Fund 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 Fund 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.

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.

SCHEDULE I Unit Prices

Refer to Section 4.04 of the Agreement for additional information.

<u>Work or Material Description</u>	<u>Amount in Words</u>	<u>Amount in Figures</u>

SCHEDULE II Allowance(s)

Refer to Section 4.05 of the Agreement for additional information. The amount(s) indicated below shall be included in the Total Bid amount and their total indicated on the Proposal in the space provided.

<u>Work or Material Description</u>	<u>Amount in Words</u>	<u>Amount in Figures</u>

SCHEDULE III Field Order Allowance

Refer to Section 4.05A of the Agreement for additional information. The amount indicated below shall be included in the Total Bid amount and indicated on the Proposal in the space provided.

(in words)

(in figures)

LABOR AND MATERIAL BOND

KNOW ALL PERSONS BY THESE PRESENTS, that

(hereinafter called the "Principal") and

(hereinafter called the "Surety") are held and firmly bound to the State University Construction Fund (hereinafter called the "Fund") in the full and just sum of

dollars (\$)

good and lawful money of the United States of America, for the payment of which sum of money, well and truly to be made and done, the Principal binds itself, its heirs, executors, administrators, successors and assigns and the Surety binds itself, its successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract bearing date on the

day of , 20 ,

with the Fund for the

a copy of which Contract is annexed to and hereby made a part of this Bond as though herein set forth in full; and

WHEREAS, the Fund has required this Bond guaranteeing prompt payment of monies due to all persons furnishing the Principal or any subcontractor of the Principal with labor or materials in the prosecution of the work provided in such Contract;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal shall

promptly pay all monies due to all persons furnishing the

Principal or any subcontractor of the Principal with labor or materials in the prosecution of the Contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

PROVIDED, HOWEVER, the said Surety, for value received, hereby stipulates and agrees that no change, extension, alteration or addition to the terms of the said Contract or Specifications accompanying the same, shall in any way affect its obligations under this Bond, and it does hereby waive notice of any such change, extension, alteration or addition; and further.

PROVIDED, HOWEVER, the place of trial of any action on this Bond shall be in the county in which the said Contract was to be performed, or if said Contract was to be performed in more than one county, then in any such county, and not elsewhere; and further

PROVIDED, HOWEVER, this Bond shall be enforceable in accordance with the terms and provisions of Section 137 of the State Finance Law.

IN WITNESS WHEREOF, the Principal has hereunto set its hand and seal and the Surety has caused this instrument to be signed by its attorney-in-fact and its corporate seal to be hereto affixed this

day of , 20 .

Principal

By _____

(If Corporation, affix corporate seal)

Surety

By _____

(If Corporation, affix corporate seal)

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS, that

(hereinafter called the "Principal") and

(hereinafter called the "Surety") are held and firmly bound to the State University Construction Fund (hereinafter called the "Fund") in the full and just sum of

dollars (\$)

good and lawful money of the United States of America, for the payment of which sum of money, well and truly to be made and done, the Principal binds itself, its heirs, executors, administrators, successors and assigns and the Surety binds itself, its successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract bearing date on the day of , 20 , with the Fund for the

a copy of which Contract is annexed to and hereby made part of this Bond as though herein set forth in full; and

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, its representatives or assigns, shall well and faithfully comply with and perform all the terms, covenants and conditions of said Contract on its part to be kept and performed and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to the true intent and meaning of said Contract, including repair and/or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the Fund from all cost and damage which it may suffer by reason of failure to do so, and shall fully reimburse and repay the Fund for all outlay and expense which the Fund may incur in making good any such default, and shall protect the said Fund against, and pay any and all amounts, damages, costs and judgments which may or shall be recovered against said Fund or its trustees, officers, agents or employees or which the said Fund may be called upon to pay to any person or corporation by reason of any damages arising or growing out of the doing of said work, or the repair of maintenance thereof, or the manner of doing the same, or the neglect of the said Principal, or its agents, or the improper performance of the said work by the said Principal, or its agents, or the infringement of any patent or patent rights by reason of the use of any materials furnished or

work done as aforesaid or otherwise, then this obligation shall be null and void, otherwise to remain in full force and effect;

PROVIDED, HOWEVER, the said Surety, for value received, hereby stipulates and agrees, if requested to do so by the Fund, to fully perform and complete the work mentioned and described in said Contract, pursuant to the terms, conditions, and covenants thereof, if for any cause the Principal fails or neglects to so fully perform and complete such work and the Surety further agrees to commence such work of completion within ten (10) calendar days after written notice thereof from the Fund and to complete such work within 10 (10) calendar days from the expiration of the time allowed the Principal in the Contract for the completion thereof; and further

PROVIDED, HOWEVER, the Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety and its Bond shall be in no way impaired or affected by an extension of time, modification, omission, addition, or change in or to the said Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer of any work to be performed or any monies due or to become due thereunder or by the Fund's takeover, use, occupancy or operation of any part or all of the work covered by the Contract; and said Surety does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts, transfers, takeovers, uses, occupancies or operations, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to said Surety as though done or omitted to be done by or in relation to said Principal.

IN WITNESS WHEREOF, the Principal has hereunto set its hand and seal and the Surety has caused this instrument to be signed by its attorney-in-fact, and its corporate seal to be hereunto affixed this day of , 20 .

Principal

By _____

(If Corporation, affix corporate seal)

Surety

By _____

(If Corporation, affix corporate seal)

ACKNOWLEDGMENTS FOR BONDS

(ACKNOWLEDGMENT BY PRINCIPAL, UNLESS IT BE A CORPORATION)

STATE OF)
) ss.:
COUNTY OF)

On this _____ day of _____, 20_____, before me personally came

_____, to me known and known to me to be the person(s)
described in and who executed the foregoing instrument and acknowledged that he executed the same.

Notary Public

(ACKNOWLEDGMENT BY PRINCIPAL, IF A CORPORATION)

STATE OF)
) ss.:
COUNTY OF)

On this _____ day of _____, 20_____, before me personally came

_____, to me known who, being by me

duly sworn, did depose and say that he resides in _____;

that he is the _____ of the

_____, the corporation described in and
which executed the foregoing instrument; that he knows the seal of said corporation; that the seal affixed to said
instrument is such corporate seal; that is was so affixed by order of the Board of Directors of said corporation and that he
signed h name thereto by like order.

Notary Public

(ACKNOWLEDGMENT BY SURETY COMPANY)

STATE OF)
) ss.:
COUNTY OF)

On this _____ day of _____, 20_____, before me personally came

_____, to me known who, being by me

duly sworn, did depose and say that he resides in _____;

that he is the _____ of the _____,
the corporation described in and which executed the foregoing instrument; that he knows the seal of said
corporation; that the seal affixed to said instrument is such corporate seal; that is was so affixed by order of the Board of
Directors of said corporation and that he signed h name thereto by like order; and that the liabilities of said
company do not exceed its assets as ascertained in the manner provided by the laws of the State of New York.

Notary Public



Kathy Hochul, Governor

Roberta Reardon, Commissioner

SUCF

Michael Maza, Associate Principal
115 Fifth Avenue
New York NY 10003

Schedule Year 2022 through 2023
Date Requested 06/06/2023
PRC# 2023006521

Location Purchase College
Project ID# SUCF # 291306-01
Project Type Renovations to Relocate Admissions for Rehab of Administration Bldg - Phase 1A State University College at Purchase

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 2022 through June 2023. 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 12240

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.

There are very few exceptions to this rule. Complete information regarding these exceptions is available on the ["Request for a dispensation to work overtime" form \(PW30\)](#) and ["4 Day / 10 Hour Work Schedule" form \(PW 30.1\)](#).

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 form 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 12240; 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 12240 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

SUCF

Michael Maza, Associate Principal
115 Fifth Avenue
New York NY 10003

Schedule Year 2022 through 2023
Date Requested 06/06/2023
PRC# 2023006521

Location Purchase College
Project ID# SUCF # 291306-01
Project Type Renovations to Relocate Admissions for Rehab of Administration Bldg - Phase 1A State University College at Purchase

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 12240

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.

**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 12240

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:

IA 999 (09/16)

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.

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/public-work-and-prevailing-wage>

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) 568-5156		

* 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 12240

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

06/01/2023

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: 07/01/2022

Boilermaker	\$ 63.38
Repairs & Renovations	63.38

SUPPLEMENTAL BENEFITS

Per Hour:

Boilermaker	32% of hourly
Repair & Renovations	Wage Paid
	+ \$ 25.38

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 (D, O) on OVERTIME PAGE

Repairs & Renovation see (B,E,Q)

HOLIDAY

Paid: See (8, 16, 23, 24) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 12, 15, 16, 22, 23, 24, 25) on HOLIDAY PAGE

NOTE: *Employee must work in pay week to receive Holiday Pay.

**Employee gets 4 times the hourly wage rate for working Labor Day.

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:

Apprentice(s)	32% of Hourly
	Wage Paid Plus
	Amount Below

1st Term	\$ 19.41
2nd Term	20.26
3rd Term	21.11
4th Term	21.96
5th Term	22.82
6th Term	23.68
7th Term	24.52

NOTE: "Hourly Wage Paid" shall include any and all premium(s)

4-5

Carpenter

06/01/2023

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2022

Piledriver	\$ 58.16
	+ 9.54*

Dockbuilder \$ 58.16
+ 9.54*

*This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$ 44.54

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
\$24.60	\$30.20	\$38.58	\$46.97
+ 5.05*	+ 5.05*	+ 5.05*	+ 5.05*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:

All Terms: \$ 31.03

8-1556 Db

Carpenter

06/01/2023

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2022

Carpet/Resilient

Floor Coverer \$ 55.05
+ 8.25*

*This portion is not subject to overtime premiums

INCLUDES HANDLING & INSTALLATION OF ARTIFICIAL TURF AND SIMILAR TURF INDOORS/OUTDOORS.

SUPPLEMENTAL BENEFITS

Per hour:

\$ 39.40

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
\$ 24.80	\$ 27.80	\$ 32.05	\$ 39.93
+ 1.85*	+ 2.35*	+ 2.85*	+ 3.85*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:

1st	2nd	3rd	4th
\$ 14.80	\$ 15.80	\$ 18.90	\$ 19.90

8-2287

Carpenter**06/01/2023**

JOB DESCRIPTION Carpenter**DISTRICT** 8**ENTIRE COUNTIES**

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per Hour: 07/01/2022

Marine Construction:

Marine Diver \$ 73.03
+ 9.54*

Marine Tender \$ 62.11
+ 9.54*

*This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker \$ 44.54

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18, 19) on HOLIDAY PAGE

Overtime: See (5, 6, 10, 11, 13, 16, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One (1) year terms.

1st year	\$ 24.60 + 5.05*
2nd year	30.20 + 5.05*
3rd year	38.58 + 5.05*
4th year	56.97 + 5.05*

*This portion is not subject to overtime premiums

Supplemental Benefits

Per Hour:

All terms \$ 31.03

8-1456MC

Carpenter**06/01/2023**

JOB DESCRIPTION Carpenter**DISTRICT** 8**ENTIRE COUNTIES**

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2022

Building
Millwright \$ 57.80
+ 12.62*

*This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS

Per hour:

Millwright \$ 43.16

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

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.
\$31.24	\$36.69	\$42.14	\$53.04
+ 6.75*	+ 7.92*	+ 9.09*	+ 11.43*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:

One (1) year terms:

1st.	2nd.	3rd.	4th.
\$29.01	\$31.54	\$34.72	\$39.14

8-740.1

Carpenter

06/01/2023

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour:

07/01/2022

Timberman \$ 53.05
+ 10.01*

*This portion not subject to overtime premiums

SUPPLEMENTAL BENEFITS

Per Hour:

07/01/2022

\$ 43.75

OVERTIME PAY

See (B, E, E2, Q) 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:

One (1) year terms:

1st	2nd	3rd	4th
\$22.42	\$27.53	\$35.18	\$42.84
+ 5.30*	+ 5.30*	+ 5.30*	+5.30*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:

All terms \$ 30.74

8-1556 Tm

Carpenter

06/01/2023

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, Tompkins Corner, 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: 07/01/2022 10/18/2022

Core Drilling:

Driller \$ 42.27 \$ 43.38
+ 2.30* + 2.50*

Driller Helper 33.47 34.47
+ 2.30* + 2.50*

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 is not subject to overtime premiums

SUPPLEMENTAL BENEFITS

Per hour:

Driller and Helper \$ 28.30 \$ 28.85

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

06/01/2023

JOB DESCRIPTION Carpenter - Building / Heavy&Highway

DISTRICT 11

ENTIRE COUNTIES

Putnam, Rockland, Westchester

WAGES

WAGES:(per hour)

Applies to CAPRENTER BUILDING/HEAVY & HIGHWAY/TUNNEL:

	07/01/2022	07/01/2023	07/01/2024	07/01/2025
		Additional	Additional	Additional
Base Wage	\$ 38.95	\$ 1.25**	\$ 1.25**	\$ 1.25**
	+\$6.65*			

*For all hours paid straight or premium.

**To be allocated at a later date.

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 \$ 32.88

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	5th
\$ 19.48	\$ 23.37	\$ 25.32	\$ 27.27	\$ 31.16
+3.57*	+3.57*	+3.57*	+3.57*	+3.57*

*For all hours paid straight or premium

SUPPLEMENTAL BENEFITS per hour:

All terms \$ 16.28

11-279.1B/HH

Electrician

06/01/2023

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond, Westchester

WAGES

Per hour: 07/01/2022 03/09/2023

Service Technician \$ 35.40 \$ 36.40

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: \$ 20.18 \$ 21.07

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

06/01/2023

JOB DESCRIPTION Electrician

DISTRICT 8

ENTIRE COUNTIES

Westchester

WAGES

Per hour: 07/01/2022

*Electrician/A-Technician \$ 53.75
Teledata 53.75

*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 \$ 54.39

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:

	07/01/2022
1st term	\$ 15.00
2nd term	16.00
3rd term	18.00
4th term	20.00
MIJ 1-12 months	25.00
MIJ 13-18 months	28.50

Supplemental Benefits per hour:

	07/01/2022
1st term	\$ 10.82
2nd term	13.05
3rd term	14.39
4th term	15.72
MIJ 1-12 months	13.49
MIJ 13-18 months	13.87

8-3/W

Electrician

06/01/2023

JOB DESCRIPTION Electrician

DISTRICT 8

ENTIRE COUNTIES

Westchester

WAGES

Per hour

	07/01/2022
Electrician -M	\$ 28.50
H - Telephone	28.50

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

	07/01/2022
Electrician &	
H - Telephone	\$ 13.87

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**06/01/2023****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:

	07/01/2022	03/17/2023
Elevator Constructor	\$ 75.14	\$ 77.49
Modernization & Service/Repair	59.09	60.89

Four(4), ten(10) hour days may be worked at straight time during a week, Monday thru Friday.

NOTE- In order to use the '4 Day/10 Hour Work Schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 IS NOT SUBMITTED you will be liable for overtime payments for work over the allotted hours per day listed.

SUPPLEMENTAL BENEFITS

Per Hour:

Elevator Constructor	\$ 43.914	\$ 45.574
Modernization & Service/Repairs	42.787	44.412

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:

*Note:1st, 2nd, 3rd Terms are based on Average wage of Constructor & Modernization.

Terms 4 thru 9 Based on Journeyman's wage of classification Working in.

6 MONTH TERMS:

1st Term*	2nd & 3rd Term*	4th & 5th Term	6th & 7th Term	8th & 9th Term
50%	50%	55%	65%	75%

SUPPLEMENTAL BENEFITS

Elevator Constructor

1st Term	\$ 0.00	\$ 0.00
2nd & 3rd Term	34.772	36.024
4th & 5th Term	35.606	36.943
6th & 7th Term	37.052	38.448
8th & 9th Term	38.497	39.953

Modernization &
Service/Repair

1st Term	\$ 0.00	\$ 0.00
2nd & 3rd Term	34.672	35.694
4th & 5th Term	35.195	36.525
6th & 7th Term	36.571	37.948
8th & 9th Term	37.938	39.38

4-1

Elevator Constructor**06/01/2023**

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	07/01/2022	01/01/2023
Mechanic	\$ 64.63	\$ 67.35
Helper	70% of Mechanic Wage Rate	70% of Mechanic Wage Rate

Four (4), ten (10) hour days may be worked for New Construction and Modernization Work at straight time during a week, Monday thru Thursday or Tuesday thru Friday.

***Four (4), ten (10) hour days are not permitted for Contract Work/Repair Work

NOTE - In order to use the '4 Day/10 Hour Work Schedule' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule', form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour	07/01/2022	01/01/2023
Journeyman/Helper	\$ 36.885*	\$ 37.335*

(*)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 Journeyman/Helper

1-138

Glazier

06/01/2023

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:	7/01/2022	11/01/2022
Glazier & Glass Tinting	\$ 59.59	\$ 60.34
*Scaffolding	61.55	62.55
Window Film		
**Repair & Maintenance	30.11	30.11

*Scaffolding includes swing scaffold, mechanical equipment, scissor jacks, man lifts, booms & buckets 24' or more, but not pipe scaffolding.

****Repair & Maintenance-** All repair & maintenance work on a particular building whenever performed, where the total cumulative contract value is under \$148,837.

SUPPLEMENTAL BENEFITS

Per hour:	7/01/2022	11/01/2022
Glazier & Glass Tinting	\$ 37.55	\$ 38.05
Window Film		
Repair & Maintenance	22.01	22.01

OVERTIME PAY

See (B,H,V) on OVERTIME PAGE.

For 'Repair & Maintenance' see (B, B2, I, S) on overtime page.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (4, 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:

	7/01/2022	11/01/2022
1st term	\$ 21.15	\$ 21.45
2nd term	29.07	29.45
3rd term	35.20	35.65
4th term	47.38	47.98

Supplemental Benefits:

(Per hour)

1st term	\$ 17.15	\$ 17.35
2nd term	24.42	24.67
3rd term	27.06	27.36
4th term	32.15	32.55

8-1087 (DC9 NYC)

Insulator - Heat & Frost

06/01/2023

JOB DESCRIPTION Insulator - Heat & Frost

DISTRICT 8

ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Westchester

WAGES

Per hour:	07/01/2022	05/31/2023
Insulator	\$ 58.25	+ \$ 2.00
Discomfort & Additional Training**	61.30	+ \$ 2.00
Fire Stop Work*	31.15	+ \$ 2.00

* 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	\$ 36.10

Discomfort &
Additional Training 38.09
Fire Stop Work:
Journeyworker 18.41

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
\$ 31.15	\$ 36.56	\$ 41.98	\$ 47.41

Discomfort & Additional Training Apprentices:

1st	2nd	3rd	4th
\$ 32.67	\$ 38.39	\$ 44.12	\$ 49.85

Supplemental Benefits paid per hour:

Insulator Apprentices:

1st term	\$ 18.41
2nd term	21.94
3rd term	25.48
4th term	29.03

Discomfort & Additional Training Apprentices:

1st term	\$ 19.41
2nd term	23.14
3rd term	26.88
4th term	30.62

8-91

Ironworker

06/01/2023

JOB DESCRIPTION Ironworker

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour:	07/01/2022	01/01/2023
Stone Derrickmen Rigger	\$ 72.26	Additional + \$ 1.64
Stone Handset Derrickman	70.11	+ \$ 1.11

SUPPLEMENTAL BENEFITS

Per hour:

Stone Derrickmen Rigger	\$ 42.10
Stone Handset Derrickman	42.09

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
07/01/2022	\$ 35.58	\$ 50.89	\$ 56.71	\$ 62.48

Supplemental benefits:

Per hour:

07/01/2022	21.61	31.97	31.97	31.97

Stone Handset:

1/2 year terms at the following hourly wage rate:

	1st	2nd	3rd	4th
07/01/2022	34.50	49.43	54.99	61.00

Supplemental benefits:

Per hour:

07/01/2022	21.60	31.96	31.96	31.96

9-197D/R

Ironworker

06/01/2023

JOB DESCRIPTION Ironworker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour: 07/01/2022 01/01/2023

Ornamental	\$ 46.65	\$ 46.90
Chain Link Fence	46.65	46.90
Guide Rail	46.65	46.90

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker:	\$ 62.04	\$ 63.04

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

Apprentices Hired after 9/1/18:

1 year terms

	07/01/2022	01/01/2023
1st Term	\$ 20.63	\$ 21.13
2nd Term	24.22	24.77
3rd Term	27.80	28.40
4th Term	31.38	32.06

Supplemental Benefits per hour:

1st Term	\$ 17.90	\$ 17.90
2nd Term	19.15	19.15
3rd Term	20.41	20.41
4th Term	21.67	21.67

4-580-Or

Ironworker

06/01/2023

JOB DESCRIPTION Ironworker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

PER HOUR:

07/01/2022 01/01/2023

Ironworker:
Structural \$ 55.70 \$ 56.45
Bridges
Machinery

SUPPLEMENTAL BENEFITS

PER HOUR PAID:

Journeyman \$ 85.35 \$ 86.35

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	\$ 28.97	\$ 29.35
2nd	29.57	29.95
3rd - 6th	30.18	30.56

Supplemental Benefits

PER HOUR PAID:

All Terms	\$ 59.18	\$ 59.94

4-40/361-Str

Ironworker

06/01/2023

JOB DESCRIPTION Ironworker

DISTRICT 4

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:	07/01/2022	07/01/2023

Reinforcing & Metal Lathing	\$ 56.90	Additional \$ 1.50

"Base" Wage	\$ 55.20 plus \$ 1.70

"Base" Wage is used to calculate overtime hours only.

SUPPLEMENTAL BENEFITS

Per hour:

Reinforcing & Metal Lathing	\$ 41.18

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	\$ 47.68
Double Time	\$ 54.18

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 13, *18, **19, 25) on HOLIDAY PAGE

*Note: Work performed after first 4 Hours.

REGISTERED APPRENTICES

(1) year terms at the following wage rates:

1st term	2nd term	3rd term	4th Term

Wage Per Hour:
\$ 22.55 \$ 23.60 \$ 24.60 \$ 37.18

"Base" Wage
\$ 21.00 \$ 22.00 \$ 23.00 \$ 35.60
plus \$1.55 plus \$1.60 plus \$1.60 plus \$1.58

"Base" Wage is used to calculate overtime hours ONLY.

SUPPLEMENTAL BENEFITS

Per Hour:

1st term 2nd term 3rd term 4th Term
\$ 18.17 \$ 17.17 \$ 16.22 \$ 22.50

4-46Reinf

Laborer - Building

06/01/2023

JOB DESCRIPTION Laborer - Building

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

WAGES

Per hour	07/01/2022	05/01/2023
Laborer	\$ 39.05 plus \$5.45**	\$ 40.05 plus \$5.45**
Laborer - Asbestos & Hazardous Materials Removal	\$ 43.50*	\$ 44.50*

* Abatement/Removal of:

- Lead based or lead containing paint on materials to be repainted is classified as Painter.
- Asbestos containing roofs and roofing material is classified as Roofer.

** This portion is not subject to overtime premium.

NOTE: Upgrade/Material condition work plan for work performed during non-outage under a wage formula of 90% wage/100% fringe benefits at nuclear power plants.

SUPPLEMENTAL BENEFITS

Per hour:	07/01/2022	05/01/2023
Journeyworker	\$ 29.50	\$ 30.50

OVERTIME PAY

See (B, E, E2, Q, *V) on OVERTIME PAGE

*Note: For Sundays and Holidays worked benefits are at the same premium as wages.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

LABORER ONLY

Hourly terms at the following wage:

	Level A 0-1000	Level B 1001-2000	Level C 2001-3000	Level D 3001-4000
07/01/2022	\$ 27.07	\$ 30.89	\$ 34.72	\$ 38.54
05/01/2023	\$ 28.08	\$ 31.90	\$ 35.72	\$ 39.54

Supplemental Benefits per hour:

Apprentices		
All terms	\$ 22.20	\$ 23.20

8-235/B

Laborer - Heavy&Highway

06/01/2023

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 Air lance, 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) 07/01/2022

GROUP I	\$ 47.13*
GROUP II	45.78*
GROUP III	45.38*
GROUP IV	45.03*
GROUP V	44.68*
GROUP VIA	46.68*
Operator Qualified	
Gas Mechanic(A Mech)	57.13*
Flagperson	38.33*

*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	\$ 26.82
Over 40 Hours	
Per Hour	20.32

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
07/01/2022	\$ 25.37	\$ 29.94	\$ 34.51	\$ 38.98

Supplemental Benefits per hour:

1st term	\$ 4.70 - After 40 hours: \$ 4.45
2nd term	\$ 4.80 - After 40 hours: 4.45

3rd term \$ 5.30 - After 40 hours: 4.85
4th term \$ 5.85 - After 40 hours: 5.35

8-60H/H

Laborer - Tunnel**06/01/2023**

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)

	07/01/2022
Class 1	\$ 53.45
Class 2	55.60
Class 4	62.00
Class 5	44.80

Toxic and hazardous waste, lead abatement and asbestos abatement work will be paid an additional \$ 3.00 an hour.

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	\$ 34.45
Benefit 2	51.60
Benefit 3	68.75

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**06/01/2023**

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.

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.

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. (Ref #14.04.01)

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.

Per hour:	07/01/2022	05/01/2023	05/06/2024
Lineman, Tech, Welder	\$ 59.01	\$ 60.41	\$ 61.91
Crane, Crawler Backhoe	59.01	60.41	61.91
Cable Splicer-Pipe Type	64.91	66.45	68.10
Digging Mach Operator	53.11	54.37	55.72
Cert. Welder-Pipe Type	61.96	63.43	65.01
Tractor Trailer Driver	50.16	51.35	52.62
Groundman, Truck Driver	47.21	48.33	49.53
Equipment Mechanic	47.21	48.33	49.53
Flagman	35.41	36.25	37.15

Additional \$1.00 per hour for entire crew when a helicopter is used.

NOTE: 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%

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

	07/01/2022	05/01/2023	05/06/2024
Journeyman	\$ 25.90	\$ 26.40	\$ 26.90
	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid
Journeyman Lineman or Equipment Operators with Crane License	\$ 27.90	\$ 29.40	\$ 30.90
	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid	*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,) on OVERTIME PAGE. *Note* Double time for emergency work designated by the Dept of Jurisdiction.

NOTE: 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 Journeyman Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour:

07/01/2022	05/01/2023	05/06/2024
\$ 25.90	\$ 26.40	\$ 26.90
*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid	*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

06/01/2023

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).

	07/01/2022	01/01/2023	01/01/2024	01/01/2025
Cable Splicer	\$ 36.28	\$ 37.73	\$ 39.24	\$ 40.81
Installer, Repairman	\$ 34.43	\$ 35.81	\$ 37.24	\$ 38.73
Teledata Lineman	\$ 34.43	\$ 35.81	\$ 37.24	\$ 38.73
Tech., Equip. Operator	\$ 34.43	\$ 35.81	\$ 37.24	\$ 38.73
Groundman	\$ 18.25	\$ 18.98	\$ 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.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED:

1ST SHIFT	REGULAR RATE
2ND SHIFT	REGULAR RATE PLUS 10%
3RD SHIFT	REGULAR RATE PLUS 15%

SUPPLEMENTAL BENEFITS

Per hour:	07/01/2022	01/01/2023	01/01/2024	01/01/2025
Journeyman	\$ 5.14	\$ 5.14	\$ 5.14	\$ 5.14
	*plus 3% of the hourly wage paid	*plus 3% of the hourly wage paid	*plus 3% of the hourly wage paid	*plus 3% of the hourly 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

NOTE: 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

06/01/2023

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.

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.
(Ref #14.01.03)

Per hour:	07/01/2022	05/01/2023	05/06/2024
Lineman, Technician	\$ 53.60	\$ 54.73	\$ 55.95
Crane, Crawler Backhoe	53.60	54.73	55.95
Certified Welder	56.28	57.47	58.75
Digging Machine	48.24	49.26	50.36
Tractor Trailer Driver	45.56	46.52	47.56
Groundman, Truck Driver	42.88	43.78	44.76
Equipment Mechanic	42.88	43.78	44.76
Flagman	32.16	32.84	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.

NOTE: 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%

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

	07/01/2022	05/01/2023	05/06/2024
Journeyman	\$ 25.90	\$ 26.40	\$ 26.90
	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid

Journeyman Lineman or Equipment Operators with Crane License	\$ 27.90 *plus 7% of the hourly wage paid	\$ 29.40 *plus 7% of the hourly wage paid	\$ 30.90 *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) on OVERTIME PAGE. *Note* Double time for emergency work designated by the Dept. of Jurisdiction.

NOTE: 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 Journeyman Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour:

07/01/2022	05/01/2023	05/06/2024
\$ 25.90 *plus 7% of the hourly wage paid	\$ 26.40 *plus 7% of the hourly wage paid	\$ 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 06/01/2023

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Nassau, Rockland, Suffolk, Westchester

WAGES

Per hour:	07/01/2022	12/05/2022	06/05/2023 Additional \$ 0.73
Tile Setters	\$ 62.01	\$ 62.62	

SUPPLEMENTAL BENEFITS

Per Hour:	\$ 26.13*	\$ 25.26*
	+ \$10.02	+ \$10.03

* 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-	751-	1501-	2251-	3001-	3751-	4501-	5251-	6001-	6501-
750	1500	2250	3000	3750	4500	5250	6000	6750	7000

07/01/2022	\$21.23	\$26.11	\$33.26	\$38.14	\$41.67	\$45.04	\$48.60	\$53.47	\$56.25	\$60.33
12/05/2022	\$21.47	\$26.39	\$33.60	\$38.52	\$42.06	\$45.47	\$49.05	\$53.96	\$56.77	\$60.90

Supplemental Benefits per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
07/01/2022									
\$12.55*	\$12.55*	\$15.16*	\$15.16*	\$16.75*	\$18.30*	\$19.35*	\$19.40*	\$17.45*	\$22.80*
+\$.69	+\$.74	+\$.84	+\$.88	+\$ 1.28	+\$ 1.33	+\$ 1.70	+\$ 1.75	+\$ 5.90	+\$ 6.42
12/05/2022									
\$12.55*	\$12.55*	\$15.16*	\$15.16*	\$16.16*	\$17.66*	\$18.66*	\$18.66*	\$16.66*	\$21.91*
+\$.71	+\$.76	+\$.86	+\$.90	+\$ 1.32	+\$ 1.37	+\$ 1.76	+\$ 1.81	+\$ 5.96	+\$ 6.51

* This portion of benefits subject to same premium rate as shown for overtime wages.

9-7/52A

Mason - Building	06/01/2023

JOB DESCRIPTION Mason - Building

DISTRICT 11

ENTIRE COUNTIES

Putnam, Rockland, Westchester

PARTIAL COUNTIES

Orange: Only the Township of Tuxedo.

WAGES

Per hour:

	07/01/2022	06/01/2023
Bricklayer	\$ 44.79	\$ 45.89
Cement Mason	44.79	45.89
Plasterer/Stone Mason	44.79	45.89
Pointer/Caulker	44.79	45.89

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 work day is mandated or required by state, federal, county, local or other governmental agency contracts, the following premiums apply:

Irregular work day 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	\$ 37.00	\$ 37.95

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

06/01/2023

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Building

07/01/2022

Wages per hour:

Mosaic & Terrazzo Mechanic \$ 59.21

Mosaic & Terrazzo Finisher 57.60

SUPPLEMENTAL BENEFITS

Per hour:

Mosaic & Terrazzo Mechanic \$ 26.21*
+ \$11.73

Mosaic & Terrazzo Finisher \$ 26.21*
+ \$11.72

*This portion of benefits subject to same premium rate as shown for overtime wages.

OVERTIME PAY

See (A, E, Q) on OVERTIME PAGE

07/01/2022- 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	2nd	3rd	4th	5th	6th
0-	1501-	3001-	3751-	4501-	5251-
1500	3000	3750	4500	5250	6000
\$ 22.82	\$ 29.34	\$ 31.32	\$ 36.55	\$ 41.77	\$ 46.99

Supplemental Benefits per hour:

\$4.62*	\$5.94*	\$15.73*	\$18.35*	\$20.97*	\$23.59*
+\$6.56	+\$8.43	+\$11.24	+\$13.11	+\$14.99	+\$16.85

*This portion of benefits subject to same premium rate as shown for overtime wages.

9-7/3

Mason - Building

06/01/2023

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:

07/01/2022

Building-Marble Restoration:
Marble, Stone & \$ 46.60

Terrazzo Polisher, etc

SUPPLEMENTAL BENEFITS

Per Hour:
Journeyworker:

Building-Marble Restoration:
Marble, Stone &
Polisher \$ 29.77

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
1ST TERM APPRENTICE GETS PAID FOR ALL OBSERVED HOLIDAYS.

REGISTERED APPRENTICES

WAGES per hour:

900 hour term at the following wage:

1st 1- 900	2nd 901- 1800	3rd 1801- 2700	4th 2701
\$ 32.61	\$ 37.28	\$ 41.94	\$ 46.60

Supplemental Benefits Per Hour:

27.07	27.97	28.87	29.77

9-7/24-MP

Mason - Building

06/01/2023

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES

Wages: 07/01/2022

Marble Cutters & Setters \$ 62.17

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker \$ 38.27

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:

750 hour terms at the following wage.

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- 6751	6751- 7500
\$ 24.88	\$ 27.97	\$ 31.08	\$ 34.17	\$ 37.29	\$ 40.39	\$ 43.51	\$ 46.61	\$ 52.82	\$ 59.05

Supplemental Benefits per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 20.55	\$ 22.04	\$ 23.52	\$ 25.01	\$ 26.47	\$ 27.96	\$ 29.42	\$ 30.91	\$ 33.86	\$ 36.81
9-7/4									

Mason - Building **06/01/2023**

JOB DESCRIPTION Mason - Building **DISTRICT 9**

ENTIRE COUNTIES

Nassau, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2022 12/05/2022 06/05/2023

Tile Finisher \$ 47.60 \$ 48.04 Additional \$ 0.58

SUPPLEMENTAL BENEFITS

Per Hour: \$ 22.16* \$ 22.31*
+ \$9.85 + \$9.85

*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 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 **06/01/2023**

JOB DESCRIPTION Mason - Building **DISTRICT 9**

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour: 07/01/2022

Marble, Stone, etc.
Maintenance Finishers: \$ 27.01

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.

SUPPLEMENTAL BENEFITS

Per Hour:

Marble, Stone, etc
Maintenance Finishers: \$ 14.40

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: 07/01/2022

0-750 \$ 21.67

751-1500	22.38
1501-2250	23.10
2251-3000	23.80
3001-3750	24.87
3751-4500	26.29
4501+	27.01

Supplemental Benefits:
Per hour:

0-750	11.52
751-1500	11.90
1501-2250	12.29
2251-3000	12.67
3001-3750	13.25
3751-4500	14.01
4501+	14.40

9-7/24M-MF

Mason - Building / Heavy&Highway	06/01/2023

JOB DESCRIPTION Mason - Building / Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour: 07/01/2022

Marble-Finisher \$ 48.97

SUPPLEMENTAL BENEFITS

Journeyworker:
per hour

Marble- Finisher \$ 35.76

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	06/01/2023

JOB DESCRIPTION Mason - Heavy&Highway

DISTRICT 11

ENTIRE COUNTIES

Putnam, Rockland, Westchester

PARTIAL COUNTIES

Orange: Only the Township of Tuxedo.

WAGES

Per hour: 07/01/2022 06/01/2023

Bricklayer	\$ 45.29	\$ 46.39
Cement Mason	45.29	46.39
Marble/Stone Mason	45.29	46.39
Plasterer	45.29	46.39
Pointer/Caulker	45.29	46.39

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 work day is mandated or required by state, federal, county, local or other governmental contracts, the following rates apply:

Irregular work day 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	\$ 37.00	\$ 37.95

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

06/01/2023

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) 07/01/2022

Building Construction:

Party Chief	\$ 76.64
Instrument Man	60.50
Rodman	40.64

Steel Erection:

Party Chief	79.41
Instrument Man	62.85

Rodman	43.48

Heavy Construction-NYC counties only:
(Foundation, Excavation.)

Party Chief	84.60
Instrument man	63.79
Rodman	54.52

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2022
Building Construction	\$ 26.69* +\$ 7.40
Steel Erection	27.29* +\$ 7.40
Heavy Construction	25.25* +\$ 7.15

* This portion subject to same premium as wages

Non-Worked Holiday Supplemental Benefit:	16.45

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

06/01/2023

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)

	07/01/2022	03/06/2023	03/04/2024
GROUP I			
Cranes- up to 49 tons	\$ 65.03	\$ 66.23	\$ 67.43
Cranes- 50 tons to 99 tons	67.28	68.53	69.77
Cranes- 100 tons and over	76.77	78.21	79.64
GROUP I-A	56.97	58.01	59.04
GROUP I-B	52.52	53.48	54.41
GROUP II	54.98	55.98	56.97
GROUP III-A	52.97	53.94	54.88
GROUP III-B	50.44	51.35	52.25
GROUP IV-A	52.44	53.40	54.33
GROUP IV-B	44.38	45.17	45.94
GROUP V	47.83	48.69	49.53
Group VI-A	55.93	56.96	57.96
GROUP VI-B			
Utility Man	45.39	46.21	47.00
Warehouse Man	47.57	48.52	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	\$ 29.87	\$ 30.57	\$ 31.32

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

06/01/2023

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:	07/01/2022	03/06/2023	03/04/2024
Group I	\$ 65.97	\$ 67.27	\$ 68.63
Group I-A	58.16	59.26	60.42
Group I-B	61.28	62.46	63.70
Group II-A	55.70	56.74	57.84
Group II-B	57.44	58.52	59.67
Group III	54.72	55.74	56.81
Group IV	49.74	50.63	51.57
Group IV-B	42.71	43.43	44.19
Group V			
Engineer All Tower, Climbing and			
Cranes of 100 Tons	74.73	76.24	77.82
Hoist Engineer(Steel)	67.67	69.01	70.41
Engineer(Pile Driver)	72.16	73.61	75.13
Jersey Spreader, Pavement Breaker (Air			
Ram)Post Hole Digger	56.99	58.06	59.19

SHIFT DIFFERENTIAL:

A 15% premium on all hours paid, including overtime hours for 2nd, 3rd shifts on all government mandated off-shift work

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.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday; Friday may be used as a make-up day.

NOTE - In order to use the 4 Day/10 Hour Work schedule Registration for Use of 4 Day/10 Hour Work Schedule, form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker:	\$ 32.60 up to 40 Hours	\$ 33.75 up to 40 hours	\$ 34.85 up to 40 hours
	After 40 hours \$ 23.40* PLUS \$ 1.20 on all hours worked	After 40 hours \$ 24.50* PLUS \$ 1.25 on all hours worked	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	\$ 29.08	\$ 29.63	\$ 30.21
2nd term	34.90	35.56	36.25
3rd term	40.71	41.48	42.30
4th term	46.53	47.41	48.34
Supplemental Benefits per hour:			
	24.55	25.70	26.85

8-137HH

Operating Engineer - Heavy&Highway

06/01/2023

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: 07/01/2022

Party Chief	\$ 81.72
Instrument Man	61.43
Rodman	52.40

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2022

All Categories
Straight Time: \$ 25.25* plus \$7.15

Premium:
Time & 1/2 \$ 37.88* plus \$7.15

Double Time \$ 50.50* plus \$7.15

Non-Worked Holiday Supplemental Benefits:
\$ 16.45

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

06/01/2023

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)

	07/01/2022	03/06/2023	03/04/2024
GROUP I	\$ 65.97	\$ 67.27	\$ 68.63
GROUP I-A	58.16	59.26	60.42
GROUP I-B	61.28	62.46	63.70
GROUP II-A	55.70	56.74	57.84
GROUP II-B	57.44	58.52	59.67
GROUP III	54.72	55.74	56.81
GROUP IV-A	49.74	50.63	51.57

GROUP IV-B	42.71	43.43	44.19
GROUP V-A			
Engineer-Cranes	74.73	76.24	77.82
Engineer-Pile Driver	72.16	73.61	75.13
Hoist Engineer	67.67	69.01	70.41
Jersey Spreader/Post			
Hole Digger	56.99	58.06	59.19

SHIFT DIFFERENTIAL:

A 15% premium on all hours paid, including overtime hours for 2nd, 3rd shifts
on all government mandated off-shift work

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.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker:

\$ 32.60 up to 40 hours	\$ 33.75 up to 40 hours	\$ 34.85 up to 40 hours
After 40 hours	After 40 hours	After 40 hours
\$23.40 plus	\$24.50 plus	\$25.55 plus
\$1.20 on all hours worked	\$1.25 on all hours worked	\$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	\$ 29.08	\$ 29.63	\$ 30.21
2nd term	34.90	35.56	36.25
3rd term	40.71	41.48	42.30
4th term	46.53	47.41	48.34

Supplemental Benefits per hour:

All terms	\$ 24.55	\$ 25.70	\$ 26.85

8-137Tun

Operating Engineer - Marine Dredging

06/01/2023

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:	07/01/2022	10/01/2022
CLASS A1	\$ 42.66	\$ 43.94
Deck Captain, Leverman		
Mechanical Dredge Operator		
Licensed Tug Operator 1000HP or more.		
CLASS A2	38.02	39.16

Crane Operator (360 swing)

CLASS B To conform to Operating Engineer
Dozer, Front Loader Prevailing Wage in locality where work
Operator on Land is being performed including benefits.

CLASS B1 36.89 38.00

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 34.73 35.77
Certified Welder

CLASS C1 33.78 34.79
Drag Barge Operator,
Steward, Mate,
Assistant Fill Placer

CLASS C2 32.69 33.67
Boat Operator

CLASS D 27.16 27.97
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	\$ 11.40 plus 6% of straight time wage, Overtime hours add \$ 0.63	\$ 11.85 plus 6% of straight time wage, Overtime hours add \$ 0.63

All Class C	\$ 11.10 plus 6% of straight time wage, Overtime hours add \$ 0.48	\$ 11.60 plus 6% of straight time wage, Overtime hours add \$ 0.50

All Class D	\$ 10.80 plus 6% of straight time wage, Overtime hours add \$ 0.33	\$ 11.35 plus 6% of straight time wage, Overtime hours add \$ 0.38

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	06/01/2023

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: 07/01/2022
Survey Classifications

Party Chief	\$ 46.44
Instrument Man	38.60
Rodman	33.64

SUPPLEMENTAL BENEFITS

Per Hour:

All Crew Members: \$ 21.60

OVERTIME PAY

OVERTIME:.... See (B, E*, Q, V) ON OVERTIME PAGE.

*Doubletime 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

9-15dconsult

Painter

06/01/2023

JOB DESCRIPTION Painter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour: 07/01/2022

Brush \$ 51.45*

Abatement/Removal of lead based
or lead containing paint on
materials to be repainted. 51.45*

Spray & Scaffold	\$ 54.45*
Fire Escape	54.45*
Decorator	54.45*
Paperhanger/Wall Coverer	53.83*

*Subtract \$ 0.10 to calculate premium rate.

SUPPLEMENTAL BENEFITS

Per hour:

Paperhanger	\$ 33.15
All others	30.88
Premium	37.72**

**Applies only to "All others" category, not paperhanger journeyworker.

OVERTIME PAY

See (A, H) 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:	07/01/2022
Appr 1st term...	\$ 19.95*
Appr 2nd term...	25.56*
Appr 3rd term...	31.00*
Appr 4th term...	41.52*

*Subtract \$ 0.10 to calculate premium rate.

Supplemental benefits:
Per Hour:

Appr 1st term...	\$ 15.22
Appr 2nd term...	18.90
Appr 3rd term...	21.81
Appr 4th term...	27.58

8-NYDC9-B/S

Painter

06/01/2023

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:	07/01/2022
Drywall Taper	\$ 51.45*

*Subtract \$ 0.10 to calculate premium rate.

SUPPLEMENTAL BENEFITS

Per hour:	
Journeyman	\$ 30.88

OVERTIME PAY

See (A, H) 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	\$ 19.95*
2nd term	25.56*
3rd term	31.00*
4th term	41.52*

*Subtract \$ 0.10 to calculate premium rate.

Supplemental Benefits - Per hour:

One year term (1500 hours) at the following dollar amount.

1st year	\$ 15.22
2nd year	18.90
3rd year	21.81
4th year	27.58

8-NYDCT9-DWT

Painter - Bridge & Structural Steel

06/01/2023

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:	07/01/2022	10/01/2022
	\$ 53.00	\$ 54.50
	+ 9.63*	+ 10.10*

ADDITIONAL \$6.00 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 (no 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:

\$ 10.90	\$ 11.78
+ 30.60*	+ 30.75*

* 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 (no 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	\$ 21.20 + 3.86	\$ 21.80 + 4.04
2nd year	\$ 31.80 + 5.78	\$ 32.70 + 6.06
3rd year	\$ 42.40 + 7.70	\$ 43.60 + 8.08
Supplemental Benefits - Per hour:		
1st year	\$.25 + 12.24	\$.25 + 12.34
2nd year	\$ 10.90 + 18.36	\$ 10.90 + 18.51
3rd year	\$ 10.90 + 24.48	\$ 10.90 + 24.68

NOTE: All premium wages are to be calculated on base rate per hour only.

8-DC-9/806/155-BrSS

Painter - Line Striping

06/01/2023

JOB DESCRIPTION Painter - Line Striping
ENTIRE COUNTIES

DISTRICT 8

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):	07/01/2022
Striping-Machine Operator*	\$ 31.53

Linerman Thermoplastic	38.34

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.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work Schedule,' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyworker:	
Striping Machine Operator:	\$ 10.03
Linerman Thermoplastic:	10.03

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:	\$ 15.00
2nd Term:	18.92
3rd Term:	25.22

Supplemental Benefits per hour:

1st term:	\$ 9.16
2nd Term:	10.03
3rd Term:	10.03

8-1456-LS

Painter - Metal Polisher

06/01/2023

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, Schuylar, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

	07/01/2022
Metal Polisher	\$ 37.78
Metal Polisher*	38.80
Metal Polisher**	41.78

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2022

Journeyworker:	
All classification	\$ 11.24

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, 9, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One (1) year term at the following wage rates:

07/01/2022

1st year	\$ 16.00
2nd year	17.00
3rd year	18.00

1st year*	\$ 16.39
2nd year*	17.44
3rd year*	18.54

1st year**	\$ 18.50
2nd year**	19.50
3rd year**	20.50

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

Supplemental benefits:

Per hour:

1st year	\$ 7.99
2nd year	7.99
3rd year	7.99

8-8A/28A-MP

Plumber

06/01/2023

JOB DESCRIPTION Plumber

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

WAGES

Per hour:

07/01/2022

Plumber and Steamfitter	\$ 60.21

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	\$ 40.01

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	\$ 22.36
2nd Term	25.66
3rd Term	29.63
4th Term	42.28

5th Term 45.36

Supplemental Benefits per hour:

1st term	\$ 16.54
2nd term	18.46
3rd term	21.96
4th term	28.95
5th term	30.68

8-21.1-ST

Plumber - HVAC / Service

06/01/2023

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: 07/01/2022

HVAC Service	\$ 41.68
	+ \$ 4.32*

*Note: This portion of wage is not subject to overtime premium.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker HVAC Service

\$ 27.79

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.
\$ 18.87	\$ 22.36	\$ 27.91	\$ 34.33	\$ 37.25
+\$2.37*	+\$2.67*	+\$3.22*	+\$3.84*	+\$4.07*

*Note: This portion of wage is not subject to overtime premium.

Supplemental Benefits per hour:

Apprentices 07/01/2022

1st term	\$ 20.30
2nd term	21.62
3rd term	23.07
4th term	25.05
5th term	26.47

8-21.1&2-SF/Re/AC

Plumber - Jobbing & Alterations

06/01/2023

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: 07/01/2022
Journeyworker: \$ 46.79

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 \$ 33.56

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	\$ 20.25
2nd year	22.48
3rd year	24.40
4th year	34.25
5th year	36.19

Supplemental Benefits per hour:

1st year	\$ 10.98
2nd year	12.92
3rd year	16.89
4th year	22.82
5th year	24.77

8-21.3-J&A

Roofer

06/01/2023

JOB DESCRIPTION Roofer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Dutchess, Kings, New York, Orange, Putnam, Queens, Richmond, Rockland, Sullivan, Ulster, Westchester

WAGES

Per Hour:	07/01/2022	05/01/2023
		Additional
Roofer/Waterproofer	\$ 45.25	\$ 2.00
	+ \$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: \$ 30.62

OVERTIME PAY

See (B, H) on OVERTIME PAGE

Note: An observed holiday that falls on a Sunday will be observed the following Monday.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year term

1st	2nd	3rd	4th
\$ 15.84	\$ 22.63	\$ 27.15	\$ 33.94
	+ 3.50*	+ 4.20*	+ 5.26*

Supplements:

1st	2nd	3rd	4th
\$ 3.88	\$ 15.48	\$ 18.50	\$ 23.04

* This portion is not subjected to overtime premiums.

9-8R

Sheetmetal Worker

06/01/2023

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 8

ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

WAGES

07/01/2022

SheetMetal Worker	\$ 45.25
	+ 3.52*

*This portion is not subject to overtime premiums.

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 \$ 45.20

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
\$ 16.79	\$ 18.88	\$ 21.00	\$ 23.08	\$ 25.20	\$ 27.30	\$ 29.89	\$ 32.43
+ 1.41*	+ 1.58*	+ 1.76*	+ 1.94*	+ 2.11*	+ 2.29*	+ 2.46*	+ 2.64*

*This portion is not subject to overtime premiums.

Supplemental Benefits per hour:

Apprentices

1st term	\$ 19.37
2nd term	21.81
3rd term	24.21
4th term	26.65
5th term	29.06
6th term	31.48
7th term	33.42
8th term	35.40

8-38

Sheetmetal Worker

06/01/2023

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per Hour: 07/01/2022

Sign Erector	\$ 53.79

NOTE: Structurally Supported Overhead Highway Signs(See STRUCTURAL IRON WORKER CLASS)

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2022

Sign Erector \$ 53.33

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:

07/01/2022

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 14.34	\$ 16.26	\$ 18.17	\$ 20.10	\$ 28.02	\$ 30.47	\$ 33.72	\$ 36.27	\$ 38.77	\$ 41.29

4-137-SE

Sprinkler Fitter

06/01/2023

JOB DESCRIPTION Sprinkler Fitter

DISTRICT 1

ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

WAGES

Per hour 07/01/2022

Sprinkler \$ 48.98
Fitter

SUPPLEMENTAL BENEFITS

Per hour

Journey person \$ 29.13

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
\$ 23.70	\$ 26.34	\$ 28.72	\$ 31.35	\$ 33.99	\$ 36.62	\$ 39.25	\$ 41.89	\$ 44.52	\$ 47.15

Supplemental Benefits per hour

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 8.37	\$ 8.37	\$ 19.76	\$ 19.76	\$ 20.01	\$ 20.01	\$ 20.01	\$ 20.01	\$ 20.01	\$ 20.01
									1-669.2

Teamster - Building / Heavy&Highway

06/01/2023

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)

07/01/2022

GROUP A	\$ 46.07*
GROUP AA	49.07*
GROUP B	46.69*
GROUP BB	46.19*
GROUP C	48.82*
GROUP D	46.52*
GROUP E	47.07*
GROUP F	48.07*
GROUP G	46.82*
GROUP H	47.44*
GROUP HH	47.82*
GROUP I	47.57*
GROUP II	47.94*

* To calculate premium wage, subtract \$.20 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 Differential: When mandated by the contracting agency, DOT, or any governmental agency contracts shall receive a shift differential of fifteen (15%) above the wage rate.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker

First 40 hours	\$ 33.87
41st-45th hours	14.88
Over 45 hours	0.75

OVERTIME PAY

See (B, E, P, R) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 8, 9, 15, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 9, 15, 25) on HOLIDAY PAGE

8-456

Welder

06/01/2023

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, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per hour 07/01/2022

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 12240

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)

☐ 01 DOT

☐ 02 OGS

☐ 03 Dormitory Authority

☐ 04 State University
Construction Fund

☐ 05 Mental Hygiene
Facilities Corp.

☐ 06 OTHER N.Y. STATE UNIT

☐ 07 City

☐ 08 Local School District

☐ 09 Special Local District, i.e.,
Fire, Sewer, Water District

☐ 10 Village

☐ 11 Town

☐ 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

PRC NUMBER ISSUED PREVIOUSLY FOR
THIS PROJECT :

OFFICE USE ONLY

B. PROJECT PARTICULARS

5. Project Title _____

Description of Work _____

Contract Identification Number _____

Note: For NYS units, the OSC Contract No. _____

6. Location of Project:
Location on Site _____

Route No/Street Address _____

Village or City _____

Town _____

County _____

7. Nature of Project - Check One:

- ☐ 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 :

- ☐ Construction (Building, Heavy Highway/Sewer/Water)
- ☐ Tunnel
- ☐ Residential
- ☐ Landscape Maintenance
- ☐ Elevator maintenance
- ☐ Exterminators, Fumigators
- ☐ Fire Safety Director, NYC Only
- ☐ Guards, Watchmen
- ☐ Janitors, Porters, Cleaners, Elevator Operators
- ☐ Moving furniture and equipment
- ☐ Trash and refuse removal
- ☐ Window cleaners
- ☐ Other (Describe)

9. Has this project been reviewed for compliance 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://applications.labor.ny.gov/EDList/searchPage.do>

For inquiries where WCB is listed as the "Agency", please call 1-866-546-9322

NYSDOL Bureau of Public Work Debarment List 05/31/2023

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	*****4018	ADIRONDACK BUILDING RESTORATION INC.		4156 WILSON ROAD EAST TABERG NY 13471	03/26/2019	03/26/2024
DOL	AG	*****1812	ADVANCED BUILDERS & LAND DEVELOPMENT, INC.		400 OSER AVE #2300HAUPPAUGE NY 11788	09/11/2019	09/11/2024
DOL	DOL	*****1687	ADVANCED SAFETY SPRINKLER INC		261 MILL ROAD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	NYC		AGOSTINHO TOME		405 BARRETTO ST BRONX NY 10474	05/31/2018	05/31/2023
DOL	NYC		ALL COUNTY SEWER & DRAIN, INC.		7 GREENFIELD DR WARWICK NY 10990	03/25/2022	03/25/2027
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 F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL		ANGELO GARCIA		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL		ANGELO TONDO		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL		ANITA SALERNO		158 SOLAR ST SYRACUSE NY 13204	01/07/2019	01/07/2024
DOL	DOL	*****4231	ANKER'S ELECTRIC SERVICE, INC.		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL		ANTONIO ESTIVEZ		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
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	*****2591	AVI 212 INC.		260 CROPSEY AVENUE APT 11GBROOKLYN NY 11214	10/30/2018	10/30/2023
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	NYC		BALWINDER SINGH		421 HUDSON ST SUITE C5NEW YORK NY 10014	02/20/2019	02/20/2024
DOL	NYC	*****8416	BEAM CONSTRUCTION, INC.		50 MAIN ST WHITE PLAINS NY 10606	01/04/2019	01/04/2024
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		BIAGIO CANTISANI			06/12/2018	06/12/2023
DOL	DOL	*****3627	BJB CONSTRUCTION CORP.		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
DOL	DOL	*****4512	BOB BRUNO EXCAVATING, INC		5 MORNINGSIDE DR AUBURN NY 13021	05/28/2019	05/28/2024
DOL	DOL		BOGDAN MARKOVSKI		370 W. PLEASANTVIEW AVE SUITE 2.329HACKENSACK NJ 07601	02/11/2019	02/11/2024
DOL	DOL		BRADLEY J SCHUKA		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	DOL		BRUCE P. NASH JR.		5841 BUTTERNUT ROAD EAST SYRACUSE NY 13057	09/12/2018	09/12/2023
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	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL	*****4083	C.P.D. ENTERPRISES, INC		P.O BOX 281 WALDEN NY 12586	03/03/2020	03/03/2025

NYSDOL Bureau of Public Work Debarment List 05/31/2023

Article 8

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		CANTISANI & ASSOCIATES LTD		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CANTISANI HOLDING LLC			06/12/2018	06/12/2023
DOL	DOL	****3812	CARMODY "2" INC			06/12/2018	06/12/2023
DOL	DOL	****1143	CARMODY BUILDING CORP	CARMODY CONTRACTING AND CARMODY CONTRACTING CORP.	442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CARMODY CONCRETE CORPORATION			06/12/2018	06/12/2023
DOL	DOL		CARMODY ENTERPRISES, LTD.		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CARMODY INC		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL	****3812	CARMODY INDUSTRIES INC			06/12/2018	06/12/2023
DOL	DOL		CARMODY MAINTENANCE CORPORATION		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CARMODY MASONRY CORP		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
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		CHARLES ZAHRAKKA		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		CHRISTOPHER J MAINI		19 CAITLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	DOL		CHRISTOPHER PAPASTEFANO A/K/A CHRIS PAPASTEFANO		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL	****1927	CONSTRUCTION PARTS WAREHOUSE, INC.	CPW	5841 BUTTERNUT ROAD EAST SYRACUSE NY 13057	09/12/2018	09/12/2023
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	****2524	CSI ELECTRICAL & MECHANICAL INC		42-32 235TH ST DOUGLSTON NY 11363	01/14/2019	01/14/2024
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		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	NYC		DAVID WEINER		14 NEW DROP LANE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024
DOL	DOL		DELPHI PAINTING & DECORATING CO INC		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
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	NYC	****5917	EPOCH ELECTRICAL, INC		97-18 50TH AVE CORONA NY 11368	04/19/2018	04/19/2024

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DOL	DOL		FAIGY LOWINGER		11 MOUNTAIN RD 28 VAN BUREN DRMONROE NY 10950	03/20/2019	03/20/2024
DOL	DOL		FRANK BENEDETTO		19 CATLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	DOL	****4722	FRANK BENEDETTO AND CHRISTOPHER J MAINI	B & M CONCRETE	19 CAITLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
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		GABRIEL FRASSETTI			04/10/2019	04/10/2024
DOL	NYC		GAYATRI MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DOL		GEOFF CORLETT		415 FLAGGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DA		GEORGE LUCEY		150 KINGS STREET BROOKLYN NY 11231	01/19/1998	01/19/2998
DOL	DOL		GIGI SCHNECKENBURGER		261 MILL RD EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	NYC	****3164	GLOBE GATES INC	GLOBAL OVERHEAD DOORS	405 BARRETTO ST BRONX NY 10474	05/31/2018	05/31/2023
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	****5131	INTEGRITY MASONRY, INC.	M&R CONCRETE	722 8TH AVE WATERVLIET NY 12189	06/05/2018	06/05/2023
DOL	DOL		IRENE KASELIS		32 PENNINGTON AVE WALDWICK NJ 07463	05/30/2019	05/30/2024
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	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	10/25/2022	10/25/2027
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	10/25/2022	10/25/2027
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 C. DELGIACCO		722 8TH AVE WATERVLIET NY 12189	06/05/2018	06/05/2023
DOL	DOL		JAMES J. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL		JAMES LIACONE		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		JAMES RACHEL		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
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	****5368	JCH MASONRY & LANDSCAPING INC.		35 CLINTON AVE OSSINING NY 10562	09/12/2018	09/12/2023

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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		JON E DEYOUNG		261 MILL RD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	DOL		JORGE RAMOS		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	DOL		JORI PEDERSEN		415 FLAGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DOL		JOSE CHUCHUCA		35 CLINTON AVE OSSINING NY 10562	09/12/2018	09/12/2023
DOL	DOL		JOY MARTIN		2404 DELAWARE AVE NIGARA FALLS NY 14305	09/12/2018	09/12/2023
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	****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		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		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	****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	****3490	L & M CONSTRUCTION/DRYWALL INC.		1079 YONKERS AVE YONKERS NY 10704	08/07/2018	08/07/2023
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

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DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	AG	****3291	LINTECH ELECTRIC, INC.		3006 TILDEN AVE BROOKLYN NY 11226	02/16/2022	02/16/2027
DOL	DA	****4460	LONG ISLAND GLASS & STOREFRONTS, LLC		4 MANHASSET TRL RIDGE NY 11961	09/06/2018	09/06/2023
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	NYC		MAREK FABIJANOWSKI		50 MAIN ST WHITE PLAINS NY 10606	01/04/2019	01/04/2024
DOL	NYC		MARIA NUBILE		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	DOL		MASONRY CONSTRUCTION, INC.		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL	****3333	MASONRY INDUSTRIES, INC.		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		MATTHEW P. KILGORE		4156 WILSON ROAD EAST TABERG NY 13471	03/26/2019	03/26/2024
DOL	DOL		MAURICE GAWENO		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		MICHAEL LENIHAN		1079 YONKERS AVE UNIT 4YONKERS NY 10704	08/07/2018	08/07/2023
DOL	DOL	****4829	MILESTONE ENVIRONMENTAL CORPORATION		704 GINESI DRIVE SUITE 29MORGANVILLE NJ 07751	04/10/2019	04/10/2024
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	DA	****9786	NATIONAL INSULATION & GC CORP		180 MILLER PLACE HICKSVILLE NY 11801	12/12/2018	12/12/2023
DOL	NYC		NAVIT SINGH		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
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 ALLEN TOWN 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		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 BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL	****0466	PRECISION BUILT FENCES, INC.		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025

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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	*****9148	RICH T CONSTRUCTION		107 WILLOW WOOD LANE CAMILLUS NY 13031	11/13/2018	11/13/2023
DOL	DOL		RICHARD MACONE		8617 THIRD AVE BROOKLYN NY 11209	09/17/2018	09/17/2023
DOL	DOL		RICHARD REGGIO		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	DOL	*****9148	RICHARD TIMIAN	RICH T CONSTRUCTION	108 LAMONT AVE SYRACUSE NY 13209	10/16/2018	10/16/2023
DOL	DOL		RICHARD TIMIAN JR.		108 LAMONT AVE SYRACUSE NY 13209	10/16/2018	10/16/2023
DOL	DOL		RICHARD TIMIAN JR.		108 LAMONT AVE SYRACUSE NY 13209	11/13/2018	11/13/2023
DOL	DOL		ROBBYE BISSESAAR		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	01/11/2003	01/11/3003
DOL	DOL		ROBERT A. VALERINO		3841 LANYARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL		ROBERT BRUNO		5 MORNINGSIDE DRIVE AUBURN NY 13021	05/28/2019	05/28/2024
DOL	DOL		RODERICK PUGH		404 OAK ST SUITE 101SYRACUSE NY 13203	07/23/2018	07/23/2023
DOL	DOL	*****4880	RODERICK PUGH CONSTRUCTION INC.		404 OAK ST SUITE 101SYRACUSE NY 13203	07/23/2018	07/23/2023
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		ROSEANNE CANTISANI			06/12/2018	06/12/2023
DOL	DOL	*****7172	RZ & AL INC.		198 RIDGE AVENUE VALLEY STREAM NY 11581	06/06/2022	06/06/2027
DOL	DOL	*****1365	S & L PAINTING, INC.		11 MOUNTAIN ROAD P.O BOX 408MONROE NY 10950	03/20/2019	03/20/2024
DOL	DOL	*****7730	S C MARTIN GROUP INC.		2404 DELAWARE AVE NIAGARA FALLS NY 14305	09/12/2018	09/12/2023
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	NYC	*****1130	SCANA CONSTRUCTION CORP.		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025
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	NYC	*****6597	SHAIRA CONSTRUCTION CORP.		421 HUDSON STREET SUITE C5NEW YORK NY 10014	02/20/2019	02/20/2024
DOL	DOL		SHANE NOLAN		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		SHULEM LOWINGER		11 MOUNTAIN ROAD 28 VAN BUREN DR MONROE NY 10950	03/20/2019	03/20/2024

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DOL	DOL	****0816	SOLAR ARRAY SOLUTIONS, LLC		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
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	****9933	STEED GENERAL CONTRACTORS, INC.		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL	****9528	STEEL-IT, LLC.		17613 SANTE FE LINE ROAD WAYNESFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL		STEFANOS PAPASTEFANOU, JR. A/K/A STEVE PAPASTEFANOU, JR.		256 WEST SADDLE RIVER RD UPPER SADDLE RIVER NJ 07458	05/30/2019	05/30/2024
DOL	DOL		STEVE TATE		415 FLAGLER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DOL		STEVEN MARTIN		2404 DELWARE AVE NIAGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	DOL	****3800	SUBURBAN RESTORATION CO. INC.		5-10 BANTA PLACE FAIR LAWN PLACE NJ 07410	03/29/2021	03/29/2026
DOL	DOL	****1060	SUNN ENTERPRISES GROUP, LLC		370 W. PLEASANTVIEW AVE SUITE 2.329HACKENSACK NJ 07601	02/11/2019	02/11/2024
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	****8209	SYRACUSE SCALES, INC.		158 SOLAR ST SYRACUSE NY 13204	01/07/2019	01/07/2024
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		TEST		P.O BOX 123 ALBANY NY 12204	05/20/2020	05/20/2025
DOL	DOL	****6789	TEST1000		P.O BOX 123 ALBANY NY 12044	03/01/2021	03/01/2026
DOL	DOL	****5766	THE COKER CORPORATION	COKER CORPORATION	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL	****5766	THE COKER CORPORATION	COKER CORPORATION	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
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	****6392	V.M.K CORP.		8617 THIRD AVE BROOKLYN NY 11209	09/17/2018	09/17/2023
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 CONSTRUCTION	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		VICTOR ALICANTI		42-32 235TH ST DOUGLSTON NY 11363	01/14/2019	01/14/2024
DOL	NYC		VIKTAR PATONICH		2630 CROSEY AVE BROOKLYN NY 11214	10/30/2018	10/30/2023

NYSDOL Bureau of Public Work Debarment List 05/31/2023

Article 8

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	****3296	WESTERN NEW YORK CONTRACTORS, INC.		3841 LAYNARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL		WHITE PLAINS CARPENTRY CORP		442 ARMONK RD	06/12/2018	06/12/2023
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
DOL	DOL	****4730	XGD SYSTEMS, LLC	TDI GOLF	415 GLAGE AVE #302STUART FL 34994	10/31/2018	10/31/2023

010000 General Requirements

010000 General Requirements Reference Documents bound after 017900

1. Construction Fire Safety Weekly Review form
2. Statement of Special Inspections forms
3. Submittal Log
4. Campus specific general requirements, if any

01 11 00 Description of Work (Section A)

1. Work to be Done

- a. The work to be done under the Contract, in accordance with the Contract Documents, consists of performing, installing, furnishing and supplying all materials, equipment, labor and incidentals necessary or convenient for the construction of
SUCF Project No. 291036-01 'Renovations to Relocate Admissions for Rehab of
Administration Bldg – Phase 1A'
- b. And carrying out all of the duties and obligations imposed upon the Contractor by the Contract Documents.
- c. The main features of the work shall include, but not be limited to the following:
A phased renovation within an occupied building in which works should not preclude occupancy. Work involves demolition, abatement, and an tie-ins & extensions of existing building systems in order to support the renovated spaces.
 1. Demolition: Partial removal of a load bearing CIP walls, removals of defunct infrastructure (i.e. Electrical and Plumbing), and openings through existing masonry openings.
 2. Concrete: New footings and topping of existing slab.
 3. Metals: Steel framing in lieu of removed CIP walls, and lintels for small masonry openings.
 4. Wood: Casework at Administrative spaces.
 5. Openings & Finishes: Interior fitout.
 6. Fire Protection, Plumbing, HVAC, Electrical: Extension of existing systems to support new interior spaces.

2. Work Not Included:

- a. Work not included in the work of the Contract are those items marked "N.I.C"; movable furnishings, except those specifically specified or indicated on the Drawings; and items marked "by others".

01 11 13 Coordination with Other Contracts

1. There may be other contracts let for work to be done in and/or adjacent to work areas of this Contract during the work period of this Contract. This Contractor and such other contractors shall coordinate their work to conform to the progressive operation of all the work covered by such contracts and afford each other reasonable opportunities for the introduction and storage of their

supplies, materials, equipment, and the execution of their work. Refer to Section 2.16 of the Agreement.

2. Where work is turned over from/to others, perform the following:
 - a. At least two weeks prior to the turnover date, inspect the work provided by others with the Consultant. In accordance with Section 2.12(2) of the Agreement, notify the Consultant of apparent discrepancies or defects in such other construction that would render it unsuitable for the proper execution and results required by this Contract.
 - b. At least two weeks prior to the turnover date, inspect the work of this Contract to be turned over to others with the Consultant and perform corrective work, if any, as determined by the Consultant, prior to the scheduled turnover date.
3. If there are other contracts let for work to be done in and/or adjacent to work areas, those contracts will have requirements for policies of insurance that are similar to Article V of the Contractor's Agreement, but with coverage and limits commensurate with the work of those other contracts, as determined by the campus and/or letting agency. If requested by the Contractor, a copy of the contract documents will be made available for review within 15 calendar days after the receipt of the request.

[NONE]

01 18 13 Utility Shutdowns and Cutovers

1. Except as otherwise expressly provided in the Contract Documents, the Contractor shall be responsible for submitting to the Consultant and the Fund, for their approval, a proposed schedule of all utility shutdowns and cutovers of all types which will be required to complete the Project; said schedule should contain a minimum of eight (8) weeks' advance notice prior to the time of the proposed shutdown and cutover. Most campuses of the State University of New York are in full operation 12 months of the year, and shutdowns and cutovers, depending upon their type, generally must be scheduled on weekends, at night, or during holiday periods. The contract consideration is deemed to include all necessary overtime and all premium time, if any, that is required by the Contractor to complete the shutdowns or cutovers.
2. In the event the Contractor shall disrupt any existing services, the Contractor shall immediately make temporary connection to place such service back into operation and maintain the temporary connection until the Contractor makes the permanent connection. All work must be acceptable to the Consultant and the Fund.

01 21 43 Time Allowances

1. Time Delay Allowance: In addition to the requirements of Article III of the Agreement, the base bid contract duration to perform the work specified in the proposal shall include not less than five (5) consecutive and/or non-consecutive eight hour working days in the Time Progress Schedule for delays that are of no fault of the Contractor or any of its subcontractors or suppliers or caused by events or conditions that could not be reasonably anticipated.

Provide notice of delay per Section 3.04 and request use of this time allowance. When approved by Consultant, the time allowance is expended for each workday that the contractor is unable to work and all delay time used is tracked in the Time Progress Schedule. After this base bid time allowance for delay is expended, comply with the requirements of Article III for any additional delays.

01 23 00 Alternates (Section B)

1. General
 - a. The extent and details of the Alternates are indicated on the Drawings and described in the Project Manual.
 - b. Where reference is made in the description of the Alternate to products, materials, or workmanship, the specification requirements applicable to products, materials or workmanship in the Total Bid shall govern the products, materials, and workmanship of the Alternate as if these specification requirements were included in full in the description of the Alternates.
2. Alternates

[NONE]

01 26 13 Requests for Information

1. In the event that the Contractor determines that some portion of the Drawings and Project Manual for the project requires clarification or interpretation by the Consultant per Section 2.01 of the Agreement, the Contractor shall submit a Request for Information (RFI) in writing to the Consultant. The Contractor shall create an RFI log in a format approved by the Consultant. Submit the RFI log to the consultant prior to each periodic Field Meeting. Update the RFI log to reflect comments received at the Field Meetings. The Contractor shall define the issue that requires clarification or interpretation in clear and concise language as follows:
 - a. The Contractor shall customize RFI forms and logs for this project and submit them to the Consultant for review and approval prior to submission of any RFIs.
 - b. Forms should include provisions for the Consultant's response, Contractor acceptance of response or rephrasing of question, and the Consultant's additional response if requested.
 - c. Forms should include provisions for locating the issue within the building, by room number, name and nearest columns.
 - d. RFIs shall confirm that reasonable locations for the information required have been reviewed and document those locations by specific references to the Drawings and Project Manual on the RFI.
 - e. The Contractor shall review the RFI for systemic or global implications, including review of other pending RFIs and work of other phases, so that the final RFI submitted represents a reasonable consolidation of similar requests.
 - f. The Contractor shall coordinate and review the RFIs originating from its trades, subcontractors, suppliers, manufacturers, etc. for compliance with this process, including

- polling them and meeting with them onsite to review the issue prior to its submission as an RFI. The Consultant may attend such meetings.
 - g. Contractor to coordinate response from Consultant with subcontractors.
 - h. The RFI shall contain a description of what the Contractor believes to be the intent of the design documents, with due regard to Section 1.06 of the Agreement, along with reasons why the RFI is required.
 - i. RFIs shall only be submitted on the approved forms.
 - j. RFIs that do not comply with the above requirements will be returned to the Contractor for revision and resubmission.
2. The Consultant will review all RFIs to determine whether they are RFIs within the meaning of this term as defined above. If the Consultant determines that the document submitted is not an RFI, it will be returned to the Contractor un-reviewed as to content, for resubmission in the proper manner and it will be removed from the RFI log.
 3. The Consultant will respond to all RFIs within 10 business days of its receipt, unless the Consultant determines that a longer time is required for an adequate, coordinated response. If the longer response time is deemed necessary, the Consultant will notify the Contractor of that necessity and indicate when the response will be completed within 10 business days of its original receipt.
 4. Based on projects of similar complexity, it is anticipated that there may be up to 250 RFIs on this project and that multiple responses may be required to adequately answer each RFI.
 5. Responses to RFIs shall not change any requirements of the documents.

01 26 43 Amendments (Section E)

1. Amend the Agreement as follows:

In Article I, Section 1.12, Notices, after the "The State University Construction Fund" in the line starting with Name, John Horgan; in the line starting with Title, Associate Project Coordinator; in the line starting with Address, H. Carl McCall SUNY Building, 353 Broadway, Albany New York 12246; and in the line starting with Telephone Number, (518) 320-3241 and in the line starting with E-mail address, John.Horgan@suny.edu.

2. Amend the Agreement as follows:

[Not Required]

In Article II, Section 2.06, add the following:

(4) In addition to the superintendent required by 2.06(1) and (2), provide a full-time Project Manager who has ten (10) years' experience as a Project Manager with experience on three (3) other projects of similar size and scope. "Full-time" in the previous sentence is defined as being on the site of the work at any time work is being performed unless an absence is approved by the Consultant and the Fund. The Project Manager shall provide constant personal attention in managing the prosecution of all the work while it is in progress and shall respond to concerns expressed by the Consultant and the Fund in a responsible and reliable manner. The Project Manager shall not be obligated to perform any other work that is likely to impair his/her attention to the prosecution and completion of the work of this Contract. The Project Manager shall be

acceptable to the Consultant and the Fund and shall not be replaced without written permission of the Consultant and the Fund unless the Project Manager proves to be unsatisfactory to the Contractor or ceases to be in its employ. The value of the Project Manager in the Contract Breakdown required in Section 4.08 of Article IV shall be fixed at \$10,000 for each month, or portion thereof, prior to the substantial completion date specified on page A-1 of the Agreement.

3. Amend the AGREEMENT as follows:

In Article II, Section 2.20, paragraph 1(b), 12th line, after the word “Section” ADD the following:

“except for the single / sole source shown in Specification Sections 28 31 11 Digital Addressable Fire Alarm System, and Section 23 09 23 Direct Digital Control (DDC) System or HVAC, where the use of another product is not permitted.”

4. Amend the AGREEMENT as follows:

In Article V, Section 5.06 is amended as follows:

In Section 5.06 (2) (a), Delete the last sentence and insert the following in its place: “The limits under such policy shall not be less than: \$2,000,000 each occurrence; \$2,000,000 general aggregate; and products/completed operations with an aggregate limit of \$2,000,000.”

5. Amend the AGREEMENT as follows:

[Not Required]

In Article V, Section 5.06 is amended as follows:

In Section 5.06(1)h: Revise 2nd sentence to add the following additional insured ____.

In Section 5.06(2)e: Revise 1st sentence to add the following additional insured ____.

In Section 5.06(2)f: Revise 2nd sentence to add the following additional insured ____.

6. Amend the Agreement as follows

- a. In Article VI, Section 6.03, Part (2) Contract Goals, DELETE paragraph (a) in its entirety and replace with the following:

“a. For purposes of this **Contract**, the Fund hereby establishes goals of ____% for Minority-Owned Business Enterprises (“MBE”) participation and ____% for Women-Owned Business Enterprises (“WBE”) participation (**collectively, “MWBE Contract Goals”**).

i. The **12%** goal for Minority-Owned Business Enterprise participation shall be applied as follows: a maximum of one third (1/3) of the goal may be applied to purchases of materials, supplies, and equipment from MBEs.

ii. The **8%** goal for Women-Owned Business Enterprise participation shall be applied as follows: a maximum of one third (1/3) of the goal may be applied to purchases of materials, supplies, and equipment from WBEs.”

7. Amend the Agreement as follows:

In Article IX, Use of Service-Disabled Veteran-Owned Business Enterprises in Contract Performance, paragraph (5), change SDVOB goal to **3%**

01 29 00 10 Payment to Campus for Utilities

[Not used]

01 31 00 Project Management Procedures

1. The SUCF booklet titled “*Management of Design & Construction Manual*” contains forms, schedules sample documents, communications protocols, procedural requirements for meetings, submittals, reporting, testing, inspection, demonstration, acceptance, payments, changes, turnover, closeout and other administrative requirements. With specific direction from the Fund, the Contractor shall comply with the applicable construction phase requirements in the “*Management of Design & Construction Manual*” during the work of the Contract. Current versions of the forms are available at the SUCF website:

https://sucf.suny.edu/sites/default/files/docs/ManagementOfDesignConstructionManual_12-2021.pdf

01 31 00 10 Single Contract Responsibility

1. The Agreement with the Contractor is for a single contract to provide all work shown and specified. Any reference to separate electrical, communications, mechanical, plumbing, etc. contracts, unless clearly designated with another contract number or as “NIC”, shall refer to the Contractor. Any reference to “Consultant”, “Engineer”, “Landscape Consultant”, etc. shall be deemed to refer to the Consultant defined in Article 1.01 of the Agreement.”

01 31 00 20 Sheet-metal Fittings and Ductwork

1. The Contractor’s base bid shall include all sheet metal fittings necessary for the routing of the duct systems shown on the contract drawings for the Project. The straight duct sections shown on the contract drawings may not provide the required routing to achieve the connections due to coordination with other trades (and existing conditions). The amount of these additional fittings may be up to 35% of the total ductwork shown (by weight) on the project contract drawings. Fittings include elbows, transitions, offsets, taps, tees, branches, and all non-straight ductwork of all types and configurations; plus related insulations, linings, supports and appurtenances. Additional fittings required by field conditions encountered after the approval of the Coordinated Drawings shall be the sole responsibility of the Contractor and shall be installed at no additional cost to the Fund.

01 31 10 Language Requirement

1. All spoken and written communications, submittals, signage, and other media regarding the Project shall be in the English language unless otherwise agreed to by the Fund. If any original documents required for the Project are in any other language, provide an English translation, which shall take precedence in the event of conflict with the original language. When technically feasible, use gender neutral terminology in lieu of gendered.

01 31 13 10 Exploratory Demolition

1. Perform exploratory demolition to discover subsurface and other physical conditions that differ substantially from those shown on or described or indicated on the Contract Drawings. Exploratory demolition shall begin upon receipt of the Notice to Proceed and occur in locations selected in coordination with the Consultant. Exploratory demolition includes removal of portions of the building and site construction, improvements, systems, fixtures and finishes. Perform demolition in a controlled manner so as to not affect Asbestos Containing Materials, Presumed Asbestos Containing Materials, Mechanical, Electrical, Plumbing and other building systems in ceilings, wall cavities, pipe chases and other concealed spaces. Where required to expose existing conditions, perform selective abatement of asbestos and other work in Divisions 2 through 28 of the technical specifications. Provide access to the Consultant to visually inspect conditions uncovered. As required by Section 2.12 of the Agreement, notify the Consultant of physical conditions discovered during exploratory demolition. Provide temporary barriers and coverings over the uncovered areas. Provide control measures to properly limit the spread of dust, debris, and other materials. Legally dispose of debris generated during the selective exploratory demolition.
2. Exploratory demolition shall be paid for as a Field Order in accordance with Section 4.05A of the Agreement, except for the following work, which is part of the base bid:

01 31 19 Field Meetings

1. Periodic job meetings will be scheduled by the Consultant during the course of construction. The Contractor, and, upon request of the Consultant or the Fund, its principal subcontractors and manufacturer's representatives, shall attend such meetings and be prepared to furnish answers to questions on progress, workmanship, requests for Information, supplementary information, scope and price for extra work, if any, or any other subject on which the Consultant or the Fund might reasonably require information.
2. In addition to the requirements of Section 3.06 of the Agreement, the Contractor shall submit bi-weekly reports to the Consultant summarizing the last two weeks of work and next two weeks of work anticipated, listing the percent of work complete by trade, tabulating manpower utilized / projected, relevant shop drawing and submittals progress, relevant offsite fabrication progress and providing other information which may be reasonably required to understand the progress of the work.

3. In addition to the above referenced meetings, the Contractor shall schedule and manage periodic coordination meetings at the site between it and all its trades, subcontractors, suppliers, manufacturers, etc. to settle the allotment of work per Article I, Section 1.07 of the Agreement and to review progress on submittals and shop drawing, progress on installation of the work, conflicts between work of trades, compliance with the design intent, adherence to the Contractor's schedule, quality control, planning for commissioning and training of campus personnel, and other items which require coordination and sharing of information. Representatives of the Consultant and the Fund may attend these meetings to observe and make comments. These meetings shall be held a minimum of once per month and more frequently where required to effectively coordinate the construction. The Contractor shall prepare and distribute summary minutes of these meetings within 5 working days of the meeting, in accordance with the "Document Tracking and Change Control Paragraph" of this section. Distribution of the coordination meeting minutes shall be to all attendees with copies to the Fund and Consultant whether they are in attendance or not.
4. The personnel representing the Contractor and its principal subcontractors shall have the authority to make decisions directly affecting the work.
5. In addition to the above meetings, meet to review fire safety periodically during the work and, starting approximately sixteen weeks prior to the scheduled date of substantial completion, the Contractor's principals, project manager and those of its significant subcontractors shall attend additional weekly meetings with the Owner and its consultant(s) to review the progress on preparing close out deliverables, including those in Sections 01 78 23, Operating Instructions and Manuals, 01 78 36, Warranties and 01 79 00, Training of Campus Personnel.

01 31 19 10 Mock ups

1. Progress on the completion of mock ups specified in Divisions 2 through 48 shall be addressed by the Contractor at periodic meetings.
2. Provide a list of mock ups with their dates for installation to begin, installation completion, Consultant review period (which may be up to 15 working days), punch list corrections, and mock up acceptance.
3. For compliance with Section 3.03 of the Agreement, a mock up shall be considered a Sample. Accepted mock ups shall be clearly segregated and marked and remain undisturbed and accessible during the work.
 - a. Accepted mock ups are the Sample and the criteria against which the remaining work shall be judged.
 - b. Spaces with interior mockups shall have the scheduled lighting fixtures installed, or the equivalent temporary lighting, as approved by the Consultant, during the review and approval period.
 - c. Remove markings when directed by the Consultant.
 - d. Promptly record mock up locations on the Record Drawings.

- e. Where the markings have been removed and not record exists as to which surface was the mock up, the Consultant may either select a different surface as the mock up or direct the Contractor to install another one, at no additional cost to the owner.
 - f. Unless an accepted mock up is specified to remain in Divisions 2 through 48, demolish and remove mockups when directed by the Consultant.
- 4. Installation methods, environmental conditions and other contractor employed means and methods for installing the mock up may be observed by the Consultant and shall be employed and maintained in all remaining work. Workers performing the mock up work shall be employed for installation the remaining work. At any time during the remaining work, if additional workers are employed, they may be requested to demonstrate competency by providing a mock up of their work.
 - 5. In addition to the mock ups that are specified in Divisions 1 through 48, inclusive and for the purposes of determining if workers are suitable and competent in accordance with Section 2.07 of the Agreement, the Consultant may direct the Contractor to have workers provide mock ups to demonstrate their ability to properly perform their work prior to performing work that will be part of the completed Project.

01 31 19 33 Pre-Installations Meetings

- 1. Attend meetings to coordinate the efforts of all concerned parties with construction activities and to demonstrate that adequate preparations for particular construction activities have been completed. These meetings are required for any mobilization, demolition work, excavation, removal of any demolished or excavated material from the site, LEED related work, concrete work, steel erection, waterproofing, roofing, utility shutdowns or taps, commissioning or campus training related work and where required within each specific section of the specifications. The meeting should be attended by the following:
 - a. Consultant
 - b. Construction Fund
 - c. Campus
 - d. Contractor's Superintendent
 - e. Subcontractor's Superintendent / Foreman, as applicable.
 - f. Material and/or Equipment Manufacturer's Representatives, as applicable.
- 2. Agenda: Review and discuss applicable requirements of the work for the following:
 - a. Compliance with Contract documents and related field or change orders
 - b. Submittals, products, and mock-ups
 - c. Manufacturer's recommendations
 - d. Warranty requirements
 - e. Employment of competent and suitable workers and equipment
 - f. Deliveries, storage, and handling
 - g. Possible conflicts and compatibility problems
 - h. Schedule
 - i. Weather limitations
 - j. Compatibility of materials
 - k. Acceptance of substrates
 - l. Quality Assurance
 - m. Testing and inspecting requirements (including Special Inspections)

- n. Temporary facilities and controls
- o. Space and access limitations
- p. Regulations of authorities having jurisdiction
- q. Required performance results
- r. Protection of completed construction
- s. Other factors that may reasonably apply to the work

01 31 26 Document Tracking and Change Control

1. The Contractor shall maintain a computerized document and change control system to prepare, monitor status, and electronically file and send all documents and changes associated with, and required for the Project. If this system is different than the system required in Section 01 33 23, Shop Drawings and Samples, customize and configure this system as required to provide optimal coordination with the system required in Section 01 33 23.
2. The Contractor must have a MAPI-compliant e-mail system, such as Microsoft Outlook or Exchange.
3. The Contractor must provide experienced and trained personnel to maintain the document control system per this requirement. If the Consultant or the Fund determines that experienced personnel are not operating the control system, then the Contractor's personnel must attend the minimum training at Contractor's sole expense.

01 32 13 Special Project Schedule/Phasing

1. The Contractor shall be permitted to start field-work subject to the following.
 - a. In accordance with Section 2.06 of the Agreement, provide onsite the approved dedicated superintendent who has documented experience on three (3) other projects of similar size and scope where he/she effectively lead and managed crews of the size required to perform the similar work, planned and implemented a similar sequence of work that minimized the impact to campus/building occupants and deployed and managed the workers required to meet the schedule and the specified level of quality for the completed similar work.
 - b. Demonstrate that all materials required for the complete performance of the proposed field work are on site, inspected, inventoried and deemed readily available for installation of the work.
 - c. Provide a sequenced, summary list of field activities related to the transfer of the work areas from the campus to the contractor and related mobilization activities. Include those related to posting and notification to campus, erection of temporary signage for code, directional and informational purposes, and other activities required to facilitate the start up of construction activities. Review the list with the campus and the consultant and modify it to incorporate their comments. Follow the sequence of the approved list during field activities.

- d. Submit the Safety Procedures Manual required in Paragraph 01 35 13, "Safety and Protective Facilities," below.
2. In order to assist the Contractor in the planning and scheduling of construction activities, the documents have diagrams and narratives depicting a preferred sequence for closing off portions of the buildings and campus and for performing and completing portions of the work. The preferred sequence provides for continuity of campus operations and describes certain work necessary for continuity of campus operations. Provide all sequencing and minor phasing that may not be specifically indicated on the phasing documents but is reasonably inferable from the way the campus operates. The Contractor may propose alternative construction phasing, provided such phasing satisfies the requirement of continuous campus operation.
- a. The Contractor shall schedule the Work for expeditious completion in accordance with Section 3.01(2) of the Agreement. The proposed schedule must be established in cooperation with the Campus and account for Campus calendar restrictions listed in this section that affect the Contractor's access to the work areas and construction activities. At each periodic meeting, the Time Progress Schedule required by Section 3.02 of the Agreement shall be reviewed for compliance with phasing requirements. Revise and update the Time Progress Schedule to properly depict the work required to maintain continuity of campus operations.
 - i. First phases of work shall include appropriate time in the schedule for: (1) understanding Campus operations, training crews, acclimating trades and Campus to sequence and apportionment of activities; (2) additional meetings (up to twice a week during the first twelve weeks after the Notice to Proceed) with the Owner, consultant and the Contractor's principals, project manager and those of its significant subcontractors; (3) re-sequencing activities to recover from start up delays in the progressive operation of interrelated work and (4) other activities commonly associated with the start up of field work.
 - b. Academic Calendar: The Contractor is advised that the Campus intends to maintain a full institutional program throughout the Project duration. The Campus will make continuous use of adjacent spaces, buildings and site, except where work is scheduled or specified to occur. All Contract work must be scheduled and performed without causing unscheduled interruption of the normal institutional activities and processes. The Contractor shall coordinate their work with the following Campus Calendar, and No Utility shutdowns will be permitted during Registration, Study Periods, Exam Periods, or Commencement.
 - i. Web link to campus academic calendar:
<https://www.purchase.edu/offices/registrar/academic-calendar/>
 - c. The work site will be available to begin construction immediately upon Notice to Proceed. Unless otherwise indicated, normal working hours on the campus are between 7:00 AM and 4:00 PM.

- d. On the Date of Substantial Completion in the Proposal, access to the work area for any uncompleted work and for punch list items shall be restricted to after 5:00 PM and prior to 7:00 AM and comply with the following:
3. Methods of performing work shall not hinder or disrupt the Campus' occupancy, reduce Campus provided levels of cleanliness and ambient environmental conditions and affect building systems, services, and utilities serving the building unless, upon completion of each shift's work that is performed outside of normal Campus work hours, the Contractor provides cleaning to return the work areas to a similar level of cleanliness as normally provided by the Campus, returns spaces to their normal ambient environmental conditions and restores building systems, services, and utilities serving the occupancy.
4. No material or equipment shall remain inside the building unless in the active use and control of Contractor personnel.
5. The Contractor shall provide all utility relocations and re-routings necessary to maintain the existing utilities at their level of service being used by the occupants, including limiting their shutdowns for tie-ins and cutovers to those periods specified. All new work shall be in place, tested and accepted prior to performing a shutdown for the required tie in.

01 32 13 10 Scheduling of Work - Contractor's Coordination with locality

1. Contractor's Coordination with locality: Construction traffic off campus shall be coordinated with the local Department of Public Works and Public Safety Department (insert telephone number). The construction entrance and restrictions shown have been negotiated between the locality and the Owner. The Contractor shall submit a plan showing which off campus streets will be used to access the work areas shown for all work of this contract. The plan for each route used shall indicate types of vehicles, loading, anticipated vehicular noises, calendar days and hours of use, and other reasonable information that may be requested by the Consultant. The Contractor shall provide all necessary notification and training to personnel operating vehicles associated with this project to assure that the routes are followed in compliance with the restrictions. Sequence traffic of this contract to coordinate with and not reduce the current usage of off campus streets.
2. Monthly meetings, in addition to those scheduled below in the paragraph 01 31 19 "Field Meetings", shall be held with the Contractor, locality, Fund, Campus and Consultant at the locality's offices. Topics for discussion may include the connections to the locality owned infrastructure, local events, contractor's traffic and delivery plan through off campus streets and idling of construction vehicles.

01 32 13 20 Scheduling of Work - Contractor's Coordination with the with utility companies

1. The Contractor shall coordinate and cooperate with utility companies, including scheduling the work of other trades to sequence with the work schedule required by the utility companies.
2. The Contractor shall pay all costs associated with the work of the utility companies for extension and connection to their services on both a temporary and permanent basis. For gas services, standard fees and special fees for the specified pressure are required.
3. The Contractor shall accept the form of contract proposed by the utility companies without exception.

4. The Contractor shall provide any riders, amendments, etc. to its own insurance policies that it deems proper to cover the work of utility companies in accordance with Article V of the agreement or to cover other liabilities that may arise from the contractor's relationship with the utility companies on this project.
5. The Contractor shall provide prompt payments to utility companies as required to advance their work, but accept payment for such work from the Fund in accordance with Article IV of the Agreement.
6. This project includes work to be performed by the following utility companies:

NAME	Contact	Telephone number

NONE

01 32 16 Project Schedule

1. Project Schedule shall include the following:
 - a. The Contractor shall prepare a construction progress schedule which shall consist of a Critical Path Method (CPM) schedule as described below and shall incorporate the Schedule Summary Activities and Milestone Dates as indicated in item j below.
 - b. The development and updating of the Construction Progress Schedule shall be by the critical path method (CPM) and shall be computer generated using the latest version of PRIMAVERA Systems scheduling software. Other computer software will not be accepted.
 - c. The CPM Schedule shall consist of time-scaled logic diagrams and other data specified herein. The diagrams shall show activities of the project in detail and in summary format. Diagrams shall also show the order and interdependence of activities and the sequence in which the Work is to be accomplished, incorporating the schedule summary activities and milestone dates indicated in item j below, and as further planned by the contractor. All logical relationships shall be finish to start, with the following exceptions: (1) Activities at the start of the project may be start to start (2) At a milestone or project finish, activities may be finish to finish. Lag factor use will be limited, and if used, identified as a functional activity. The use of imposed start dates will also be limited. The retained logic mode shall be used for calculations.
 - d. In addition to construction activities the CPM schedule shall include, but not be limited to, the following:
 - i. Testing activities / required inspections (Show Contractor provided tests that are specified in Divisions 1 through 48, inclusive, and Consultant performed tests, where applicable).
 - ii. Subcontractor selection and approvals (major subcontractors submitted within 48 hours of bid).
 - iii. Shop drawing preparation and approval activities. Sequence submissions to provide sufficient time for the coordination of shop drawings of one trade that impact other trades, as required by Section 2.19 of the Agreement. Also include mock ups and pre-installation meetings where specified. Where practical, submittals shall be broken into smaller review packages of approximately 50 to 75 drawings. Each package will have its own activities in the schedule for submission, review and procurement. Package and schedule submission of

shop drawings in sequence with the procurement schedule to spread submittal review periods out over the greatest time period practical.

- iv. Procurement schedule (order dates, fabrication, deliveries, and long lead items – specifically list any significant product whose source is outside of the United States).
 - v. Special Campus restrictions, i.e., Campus approvals for work site access, shutdowns and other impacts (noise/ testing & examination/ site and building access etc.).Requirements for any on site shutdowns that may impact work.
 - vii. Status of LEED credits
 - viii. Training and/or instruction of campus personnel.
 - ix. Commissioning of major building systems including pre-functional testing, startup, functional testing, operational scenario testing and retesting as required.
 - x. Campus furnished products installed by the Contractor.
 - xi. Periodic meetings on construction fire safety with the Campus Fire Prevention Program Superintendent and other interested parties.
 - xii. Meetings on site with Consultant to review mock ups and detailing. Include time for the Consultant to review and consider the work of mock ups, which may be up to two weeks before mockups can be approved and installation of the material or systems may begin.
- e. The detail of information shall be such that activity duration, in general, will range from 3 to 30 days. Activity description and duration shall be shown for each activity on the diagrams. The critical path shall be determined and shall be clearly indicated on the diagrams.
- f. A Summary Schedule of the entire work of the Contract shall be provided along with the initial submittal and each update using PRIMAVERA software. The contractor shall code the activities on the initial detailed schedule to summarize the same so that the resulting Summary Schedule Activities match those listed in item j below.
- g. A CPM Report shall be provided along with the initial submittal and each update and shall include a tabulation of each activity shown on the CPM schedule. The following information shall be furnished as a minimum for each activity: Activity I.D., Description, Duration, Early/Late Start, Early/Late Finish, and Total Float. Reports and updating will indicate actual start and completion for completed activities and actual start and percentage complete and remaining duration for activities in progress.
- h. Initial phases of work shall include time in the schedule for training crews, acclimating trades to the sequence and apportionment of activities, additional meetings with the owner, Consultant, Contractor and the significant subcontractors, and re-sequencing activities to recover from start-up delays typically caused by normal activities associated with the start up of field work.
- i. Submission and review of the schedule shall be as follows:
- i. A preliminary CPM schedule, consisting of time-scaled logic diagrams and other data specified herein, defining the contractor's planned operations during the first 120 days, shall be submitted after receipt of the Notice of Award but before

receipt of the Notice to Proceed. The CPM schedule shall be sufficiently detailed to show clearly, in sequence, all salient features of the work of each trade including: the anticipated time of commencement and completion of such work and the interrelationship between such work, submission of Shop Drawings and Samples for approval, approval of Shop Drawings and Samples, placing of orders of materials, fabrication and delivery of materials, installation and testing of materials, contiguous or related work under other contracts, and other items pertinent to the work that may occur in the first 120 days. The Notice to Proceed may be withheld until this schedule is received and is deemed responsive to the project requirements.

- ii. The complete CPM Schedule, including the time-scaled logic diagrams, narrative, summary schedule, manpower schedule if applicable and activity reports shall be submitted within 60 calendar days after receipt of the Notice to Proceed but before processing second progress payment application. The Fund's Consultant will review The Schedule to ascertain that it meets the overall project objectives and that it contains all necessary milestone dates or other required elements. At that time the schedule will become the Schedule of Record (SOR) and the established "Base-Line" for project monitoring purposes. In addition to the requirements in 4.10 (1) of the Agreement, the second progress payment application will not be acted on until this schedule is received and is deemed responsive to the project requirements.
- iii. This review of the Schedule of Record is for the sole purpose of determining whether it meets the overall project objectives and milestone dates and to whether all related phasing, restrictions, Campus supplied fixturing/equipment, or any other potential impact(s), have been addressed. Agreement on the "SOR" does not constitute approval of the Contractor's means, methods, sequencing, or duration of activities. THIS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- iv. Float is defined as the amount of time between the early start date and the late start date or the early finish date and the late finish of any of the activities in the CPM Schedule. Float is not time for the exclusive use or benefit of either the Fund or the Contractor.
- v. Initial submittal, complete revisions and updates shall be submitted in four (4) copies (minimum 18" X 24"), one PDF and in native electronic format with all input data formatted for PRIMAVERA software.
- vi. The Schedule of Record shall be revised by the Contractor until it is satisfactory to the Fund and the Consultant, and the same shall be periodically revised thereafter and submitted by the Contractor to the Fund and the Consultant for acceptance at such time or times the Fund or the Consultant may request.
- vii. Whether or not the Consultant and the Fund have accepted the Project Schedule, the Schedule of Record shall be updated **weekly** and shall be submitted along with the Contractor's application for payment. For the two intervening month

periods the Contractor may “mark for progress” the SOR and submit with the applications for payment.

- viii. If the actual progress of the work is behind the timeline of the Schedule of Record by more than 15 working days, then the Contractor shall provide a new and completely revised schedule that shall be called the recovery schedule. The recovery schedule shall be provided within 30 calendar days after the Consultant’s request and its purpose is to change the sequencing of activities, duration of activities, and /or other factors as required to return the actual projected schedule completion date to that of the SOR. The recovery schedule is in addition to the regular updates. If the actual progress of the work is behind the timeline of the submitted recovery schedule by more than 15 working days, then the Contractor shall provide a new and completely revised recovery schedule.
- ix. Provide a historic schedule as requested by the Fund that shows the actual activity descriptions and durations that occurred during the work for each activity on the diagrams. The actual critical path shall be documented and shall be clearly indicated on the historic diagrams.

j. Milestone Start and Finish Dates & Summary Activities

- i. Notice to Proceed (Milestone Date)
- ii. Mobilization
- iii. Environmental & Abatement
- iv. Site Preparation & Foundations
- v. Building Frame & Enclosure
- vi. M-E-P-S (Mechanical, Electrical, Plumbing, Sprinkler & Fire Systems) Rough-In & Major Equipment Installation
- vii. M-E-P-S Systems-Fixtures/Trim/Accessories
- viii. Interior General Construction
- ix. Equipment & Specialties
- ~~x. Exterior Walks, Parking, Roads, & Landscape~~
- xi. Testing, Training & Commissioning
- xii. Life Safety Systems Tested & Accepted (Milestone Date)
- xiii. Substantial Completion/ C of O (Milestone Date)
- xiv. Campus Installed/Furnished FF&E (Fixtures, Furnishing & Equipment)
- xv. Start of Guarantee Period
- xvi. SUCF Contract Completion Date (if different from above)
- xvii. Final Completion - All punch list/outstanding items satisfied (Milestone Date)
- xviii. Field Order Work (multiple periods of work proportional to the dollar value of the field order allowance starting at the Notice to Proceed and ending at Substantial Completion.)
- xix. Other milestones as may be required by the Fund, the Consultant or the Contractors.

01 32 29 Notice of Non-Compliance

1. In the event the Consultant views the work or some portion thereof and finds that it has not been performed in accordance with the requirements of the contract documents, a Notice of Non-Compliance will be issued to the Contractor for action. Payment shall not be made for any portion of the work for which a Non-Compliance Notice has been issued and the work not corrected to the satisfaction of the Consultant.
2. Upon receipt of a Non-Compliance Notice the Contractor shall provide a written response to the Notice within ten (10) working days after receipt of the Notice. The Contractor's response shall detail either:
 - a. Why they believe that the work was performed in accordance with the contract documents, or,
 - b. What corrective action they intend to take, at their sole expense, to correct the non-conforming work.
3. Refer to Article II Section 2.02 for Contractors contention to the decision.

01 32 33 Project Photographs

1. Prior to beginning work, the contractor shall schedule with the Consultant, the Campus, and the Fund sufficient periods of time in which the Contractor shall photographically record existing conditions for all project areas using digital video in MPEG-2 format. Video shall be made at high resolution (1440 x 1152) and shall adequately zoom in on selected elements for clear representation of existing conditions. All video recording shall be done in the presence of the Consultant. Submit the completed video on DVD disk(s) to the Consultant for the record.
2. Photograph any and all damaged or misaligned materials or surfaces which may in any way be misconstrued as having occurred during the implementation of this Contract. Inspect all existing conditions on all paths of travel on the site, adjacent right of ways, and within the building with the Consultant. With clear labeling and convenient indexing, provide written documentation for each video disk referencing both the disk and site locations of recorded images of any and all damage that could be misconstrued as being caused by the Contractor's work and/or access. Repair all damage to existing conditions and along the paths of travel caused by Contractor's Operations.

01 32 33 10 Photo Documentation Services

1. Provide comprehensive photo documentation services of construction progress and certain as-built conditions.
2. Firm providing the services shall be independent of the Contractor. An acceptable firm will have three (3) years' experience in operation providing photo documentation using advanced indexing/navigation systems for construction projects of similar type, size, duration and complexity as this Project.

- a. Services include secure web based access, electronic indexing, navigation, storage and record DVDs for the documentation.
 - b. Using the architectural drawings, provide an indexing and navigation making such drawings interactive using a web based interface. Indexing and navigation must be organized by both time (date-stamped) and plan location where all photographs were taken.
 - c. Provide digital photography (minimum resolution of 1936 x 1296.) to capture actual conditions throughout construction at critical milestones. Use lens that are appropriate for the required intent and use the same lens for similar photographs for the duration of the work.
 - d. Provide continuous web based access to images through the use of any standard Internet connection. Allow for multiple-user access, simultaneously, on-line. Access shall be secure and accomplished through individual passwords. Provide redundant server back-up of the documentation required. Provide technical support related to using the system upon user request.
 - e. Upon completion of the Project, provide final copies of all documentation with the indexing and navigation system embedded (and active). Provide copies in an electronic media format, typically a DVD or external hard-drive. On-line access will not be terminated until acceptance of the final copies by the consultant.
3. Provide photographs at regular intervals, typically monthly, chosen to properly sequence the photographs with the construction progress. Take photographs of both the exterior and interior construction of the project with the intent of capturing images of structure, utilities, systems and construction details that would not be visible once other installed work prevents observation. Exterior progress photographs will include all elevations and major site features. Interior progress photographs will track interior improvements by spatial area, beginning in each spatial area once substantial interior work commences (typically at stud-work commencement) and continuing until completion.
- a. Provide photographs of concrete slabs prior to placing concrete. Provide overlapping images of all in-slab utilities, including utilities and rough-ins enclosed in consolidated slab-on-deck and suspended slabs in multi-story construction.
 - b. Provide photographs of Mechanical, Electrical, Plumbing (MEP) and all other systems before installation of insulation, sheet rock or dry wall installation. Provide overlapping images of all finished systems located in the walls and ceilings of the building(s).
 - c. Provide photographs of finished condition at substantial completion, or other milestone approved by the Consultant. Provide images of all walls, ceilings and floors in their post-inspection, completed condition.
 - d. Provide photographs of miscellaneous events (i.e., materials arriving on site) during the periodic progress documentation, but which do not fit into the planned photo path. Insert images into a separate section in the navigation structure to allow convenient access to this information.

[Not applicable]

01 33 23 Shop Drawings, Samples, Submittals and other information - (Refer to Section 2.19 of the Agreement)

- 1) In addition to the requirements of Section 2.19 of the Agreement and as specified in Divisions 1 through 48, inclusive, comply with the submittal requirements of this section. In addition, where the term “or equal” is specified in Divisions 1 through 48, inclusive, refer to and comply with the requirements of Section 2.20 of the Agreement. Shop Drawings required Divisions 1 through 48, inclusive, may include drawings, diagrams, schedules, product data and other information or materials specially prepared for the work by the Contractor to illustrate some portion of the work. Product data required by Divisions 1 through 48, inclusive, are standard illustrations, schedules, performance charts, instructions, brochures diagrams and other information amended by the Contractor to illustrate materials or equipment for some portion of the work.

ELECTRONIC SUBMITTALS

1. The Contractor shall set up and maintain a web-based submittal service to log, transmit and track (in real time) all project related documents.
 - a. All project submittals, reviews and re-submittals shall uploaded in Portable Document Format (PDF) and, if approved by the Consultant, other electronic formats requested by the Contractor. Divide, package and submit all submittals in accordance with Section 01 32 16, Project Schedule.
 - b. The service will also post, track and store RFI's (Request for Information), Supplemental Information, safety procedures manual, emergency contact and action plans, coordination drawings, traffic plans, utility cutover plans, schedule documents, meeting minutes, look-aheads, daily activity reports, project photo documentation, material safety data sheets, waste manifests, diesel emissions, field surveys, utility bills payable to the campus, campus furnished products, testing activities and results, closeout, Operating Instructions and Manuals, planting maintenance, commissioning submittals, SWPPP documents and other non-product related submittals required in the technical specifications. The service will review the contract documents and provide the list of items to be tracked.
 - c. The PDF files shall be created at a minimum resolution of 200 dots per inch utilizing the original document size and full color. Increase the resolution of the scanned file or images being submitted as required to properly present the information. PDFs created by scanning are not acceptable unless all images of text are properly and completely transformed into the electronic characters representing the text.
 - d. The Contractor shall include the full cost of Submittals Website project (all contracts) subscription in their proposal. When approved by the Consultant, all other project related

consultants, campus staff, other contractors and vendors will utilize the Submittals Website at no additional charge (unlimited number of users). Web-based training and support shall be available, free of charge from the Submittals Website, for all project participants.

- e. Acceptable Submittal Website shall document conformance with the following requirements:
 - i. Independently hosted, web-based system for automated tracking, storage and distribution of contract submittals and other contract related documents. FTP sites, e-mail exchanges, and server-based systems hosted from inside a contractor's office will not be considered.
 - ii. Utilize 256-bit SSL encryption and hosted at SAS70 Type II compliant data centers.
 - iii. Minimum four (4) years' experience of use on comparable commercial construction projects.
 - iv. Website requirements:
 - 1. Minimum of four years documented 99.5% website uptime.
 - 2. b) Minimum on-line storage required for the duration of this contract (until final closeout).
 - 3. c) Redundant storage of all project information (all contracts) at a minimum of two geographically separate storage sites (not in the same building).
 - f. At completion of project, provide PDF/A copies of all submittals (except physical samples) stored and labeled on four (4) sets of archival optical discs, Universal Serial Bus (USB) flash drives or other electronic data storage devices approved by the Consultant, which include all documents and tracking logs in a navigable format.
2. Paper prints (hard copies) of reviewed submittals:
- a. Provide **(2)** Record Paper Copies for SUCF Field Office:
 - i. Paper copies shall be printed in a size format equal to the original document.
 - ii. Scaled Shop Drawings shall be printed to the scale noted on the drawings.
 - iii. The resolution of the printed copy shall be equal to that of the PDF file that it is being printed from.
 - b. Contractor Copies: The Contractor will be responsible for making copies, for the Contractor's own use and for use by its subcontractors and suppliers.
 - c. Those marked *"REJECTED"* are not in accordance with the Contract Documents and shall be resubmitted.
 - d. *"REVISE AND RESUBMIT"* Contractor shall correct and resubmit.
 - e. *"MAKE CORRECTIONS NOTED"*: The contractor shall comply with corrections and may proceed. Resubmittal is not required.
 - f. *"APPROVED - NO EXCEPTIONS TAKEN"*: The contractor may proceed.
 - g. All shop drawings and/or submittals used on the construction site must bear the impression of the Consultant's review stamp as well as the Contractor's review stamp, indicating the status of review and the date of review. Contractor Copies: The Contractor

will be responsible for making copies, for the Contractor's own use and for use by its subcontractors and suppliers.

- h. All shop drawings shall reflect actual site conditions and accurate field dimensions. Dimensioned shop drawings shall be submitted for all fabricated items. Incomplete submittals will be rejected without review. Using electronic copies of the contract documents to prepare shop drawings, if permitted in the technical specifications, doesn't relieve the contractor of its responsibility for the accuracy of all information contained on the shop drawings. Verify and coordinate all information necessary to produce accurate and complete shop drawings.
 - i. All shop drawings, submittals and samples shall include:
 - ii. Date and revision dates.
 - iii. Project title and number.
 - iv. Names of:
 - v. Contractor
 - vi. Subcontractor
 - vii. Supplier
 - viii. Manufacturer
 - i. Provide information regarding shop drawings, submittals and samples at the Periodic Meetings.
 - j. The project specific submittal log is bound after the General Requirements. Note: The bound submittal log provides a general submittals (shop drawings, samples, mock-ups, O&M manuals, training, extra stock, maintenance during the guarantee period, warranties, test reports and other submittals) in the technical specifications and may not be all inclusive. In case of conflict or omission, the requirements of the technical specifications take precedence over the bound log.
 - k. At completion of project, provide PDF/A copies of all submittals (except physical samples) stored and labeled on four (4) sets of archival optical discs, Universal Serial Bus (USB) flash drives or other electronic data storage devices approved by the Consultant that include all documents and tracking logs in a navigable format. PDFs created by scanning are not acceptable unless all images of text are properly and completely transformed into the electronic characters representing the text.

01 33 23 20 Coordination Drawings

1. Before construction work commences and before submitting shop drawings for sleeves, piping, ductwork, etc., the Contractor shall require that the installers/ subcontractors for all trades submit Coordination Drawings.
2. The Contractor shall manage the process so that each trade/subcontractor provides all required information in a timely manner. Coordination Drawings may be completed on a phased basis so as not to delay the overall project schedule. The CPM Schedule specified elsewhere in this section shall

be amended to include the submission of Coordination Drawings. The same shall demonstrate how the Contractor intends to integrate the submission of Coordination Drawings to suit the overall project schedule.

3. Coordination Drawings shall show the resolution of trade conflicts in congested areas prior to submission of shop drawings and actual installation. The Drawings shall coordinate the placement and location of ductwork, fittings, light fixtures, cable trays, fire alarm devices, sprinklers, air terminals, hangers, supports and other ceiling mounted items shown and specified with each other, and other building elements such as ceilings, structural work, case work, equipment, doors, manufacturer's recommended maintenance clearances, code required clearances and visibility sightlines (NEC, etc.), access doors and other contract work.
4. In public and occupied areas without scheduled finish ceilings, appearance is a major coordination factor. Reposition proposed locations of work after Coordination Drawing review by the Consultant. Provide adjustments to the exact size, location and offsets of ducts, pipes, and conduit to achieve reasonable appearance objectives. Provide these adjustments as part of the Contract or notify the Consultant immediately as to why the adjustment cannot be made.
5. The medium and format of the Coordination Drawings shall be as follows:
 - a) The Contractor shall use either the Overlay Drafting System with pin bar registration to assure layer alignment, or CADD software to create the Coordination Drawings.
 - b) Each MEP Division trade shall be assigned a layer to create the detailing work of each section or division of the Specifications requiring coordination. The Contractor shall insure that the layer assigned to one trade cannot be modified by another trade, and that the final product clearly differentiates which trade is responsible for the respective information shown. The latter may occur through the use of colors or other distinct graphic methods.
 - c) The final product shall be in the form of reproducible transparencies drawn at a scale not less than 3/8 inch per foot for the entire building and each mezzanine. Mechanical and Electrical equipment rooms shall be drawn separately at a scale not less than 1/2 inch per foot and be submitted with the drawings of the entire building. At conflicts between the trades, provide details, elevations and sections of similar or larger scale as may be required to provide a clear three dimensional resolution of the conflict.
 - d) The Coordination Drawings shall be prepared as follows:
 - i) The Contractor shall prepare the base floor plan(s) in the medium chosen.
 - ii) The HVAC trade installer shall prepare the first layer of the Coordination Drawings showing all ductwork, and all pertinent heating piping and equipment. This plan may be a copy of the required ductwork shop drawings.
 - iii) The Contractor shall provide electronic or transparent copies to all the other trades/subcontractors.
 - iv) The Plumbing, Fire Protection, Controls and other non-electrical trades shall show all their piping, equipment, valves, fittings and other specified appurtenances.
 - v) The Electrical, Fire Alarm, and other electrical trades shall show all systems and equipment, including transformers, panels, terminals, devices, detectors, lighting fixtures, cable trays,

- outlets, and conduits and raceways 1" or larger. Cable tray layout shall include appropriate clearances to motors, ballasts, and other sources of electromagnetic interference.
- vi) The Contractor shall review the Drawings and indicate areas of architectural, equipment, structural and other conflicts and obstacles and coordinate locations of rated and exterior walls to assure their continuity and closure as specified. The Contractor determines that all work can be installed without interference. In the case of unresolved interference, notify the Consultant. The Consultant will then suggest to the Contractor as to how to revise the Drawings to eliminate interference. The Contractor shall then have the trade(s) revise their respective Drawings to eliminate interference.
 - vii) Fabrication and installation of work in a given bay or area shall not proceed until the Contractor has made all trades agree on the exact arrangements for each bay or area. If a given trade proceeds prior to resolving conflicts, then, if necessary, that trade shall change its work at no extra cost in order to permit the other trades to proceed with a coordinated installation. Coordination approval may be given by the Contractor for a bay or area only after site meetings involving all trades have occurred.
 - viii) In the event of conflict areas without ductwork, each respective trade in conflict shall prepare coordination drawings showing the suggested final arrangements for review.
- e) Coordination Drawings are intended for use by the respective trades during construction and shall not be construed as replacing either the shop drawings specified in the technical specifications or the Record Drawings required in the Agreement.
 - f) Submit Coordination Drawings for review in the same manner as specified for shop drawings. The Consultant's review of Coordination Drawings shall not relieve the Contractor from their responsibilities for coordinating the work with the work of all trades involved on the Project. The Consultant's review shall not authorize any extra cost, omission and/or deviation from the requirements of the Contract Documents. Any costs arising from errors and omissions in the Coordination Drawings shall be borne by the Contractor.
 - g) Provide three copies of the Final Coordination Drawing transparencies, and/or electronic files of CADD drawings on CD-ROM at the completion of the work. All copies shall become the property of the Fund.

01 35 10 Archeological or Historical Finds

1. In the event that any relics or items with archeological or historical value or other valuable materials are discovered on the site or in a building by the Contractor or any subcontractor, the Contractor shall immediately notify Owner and appropriate authorities in accordance with applicable Laws and await the decision of Owner before proceeding with any further Work that might harm or destroy such relics. Neither Contractor nor any subcontractor shall have any property rights to such relics.

01 35 13 Conducting Work

1. All work is to be conducted in such a manner as to cause a minimum degree of interference with the Campus' operation and academic schedule. Prior to any excavation, demolition or other work that may impact campus and/or building utilities, systems and infrastructure by causing alarm(s), failure(s) or interfering with the ability of utilities, systems and infrastructure to serve the campus, provide a written emergency action plan that clearly describes the steps required to safely shut

down utilities, systems and infrastructure that are within the work area and those outside the work area and within approximately 25 feet of the work area limits, as approved by the Consultant. The plan shall comply with the Fire Code of New York State. The emergency action plan shall identify the shut off point(s) for each utility, system and infrastructure and secondary shut off point(s) if the primary points fail or inaccessible. To identify shut off points, trace each utility, system and infrastructure in the presence of the campus representative from the work area to the shut off points. The emergency action plan shall describe the shutdown procedure, identity tools required for shutdown, sequence of activities required for proper shutdown, the name of the person(s) or trade(s) deemed competent to perform each activity in the shutdown sequence and names and telephone numbers of the campus staff required to provide access to shut off points, assist in the shut off or perform portions of the shutdown activities. Submit the emergency action plan for review and approval at least two weeks prior to field work in the work area. Field work shall not begin until the emergency action plan is approved.

2. By the end of each workday, the Contractor shall submit daily manpower counts and a brief description/location of the day's activities. *PLEASE NOTE: FOREMAN MAY HAVE TO STAY PAST NORMAL QUITTING TIME TO PROPERLY COMPLETE THIS PAPERWORK.* Manpower shall be broken down by job classification (foreman, journeyman or apprentice), and also by number of minority and women workers, including information for all subcontractors, suppliers or other workers. The report shall also note all deliveries, equipment on site, whether inspections passed or failed, visitors and inspections.
3. Proper attire is required on-site. Full-length pants, shirts with sleeves and hard sole work boots are required. No shorts, tank tops or sneakers are allowed. Workers not properly dressed will be sent home.
4. Safe and direct ADA accessible entrance to and exiting from the existing buildings shall be maintained at all times during regular hours while construction is in progress. Means of egress for construction workers shall comply with the Fire Code of New York State. Prior to performing any removals or construction that impairs free egress from existing building exits to refuge areas remote from the buildings, complete the installation of all temporary fencing, barricades and walkways. Install temporary egress, stairs, ramps and paths around work areas that comply with the Protection of Pedestrians section of the Safeguards During Construction chapter the New York State Uniform Fire Prevention and Building Code.
5. Unless otherwise permitted by the Consultant and the Fund, the removal and/or demolition of given work items shall not occur until the Contractor has all the required replacement materials on-site.
6. Code of Conduct: The Contractor and its employees shall comply with College regulations governing conduct, background checks, access to the premises, and operation of equipment. In addition:
 - a. All employees of the Contractor and every subcontractor must comply with all site access control and security procedures prescribed by the Campus which may include, but are not limited to, the wearing of identification badges, ingress and egress through controlled entry and exit points, and use of card readers or other electronic identity verification devices. In the event said identification badge has not been issued by the Contractor, all employees of the Contractor and every subcontractor must produce a valid form of government-issued photo identification promptly

upon request of the Campus. Failure to display such identification or to display or produce such identification in the manner as prescribed by the Campus may result in the employee's non-admittance to or immediate removal from the site

- b. The Contractor and his/her workers, employees, subcontractors and their workers, etc., will not fraternize with any building or campus occupants. This includes, but is not limited to, students, faculty, and employees of the State other than those designated contacts for this Project, visitors and guests.
 - c. At no time will it be appropriate to say, write, or gesture anything derogatory to or about any individual(s). Harassment, verbal or otherwise, of any individuals will not be tolerated.
 - d. Alcoholic beverages or illegal drugs are not permitted on this Project. Smoking may be permitted where it is permitted by campus regulations and controlled in accordance with the Fire Code of New York State, except that smoking shall be prohibited throughout demolition work areas and where recommended by NFPA 241 Annex A, Explanatory Material.
 - e. Radio playing is disruptive to building occupants and is not permitted.
 - f. If worker(s) fail to properly adhere to the Code of Conduct or fail to follow safety or other regulations, the Contractor will be directed to permanently remove the worker(s) from the site and replace the worker(s) at no additional cost to the Project.
 - g. ID Badges:
 - i. All Contractor onsite personnel are required to furnish and wear identification badges at all times on Campus. The badge shall be formatted similar to a driver's license and include the following:
 - 1) Photograph of Employee
 - 2) Name of Employee
 - 3) Name of the Company
 - 4) Trade
 - 5) Project Name:
 - ii. Badge shall be laminated in clear plastic
 - iii. Format shall be approved by the Consultant and consistently employed throughout the project.
7. The building shall not be left "open" overnight or during any period of inclement weather. Temporary weather tight closures shall be provided for by the Contractor to protect the structure and its contents.
- a. Provide an emergency plan to secure the work site during severe weather.
 - b. As part of the base bid, for ambient exterior weather conditions, include all reasonable materials, labor and equipment, which may be in addition to those required for the work, to implement the emergency plan for conditions up to the 95th percentile recorded seasonal conditions recorded at the nearest National Weather Service site.
 - i. For conditions meeting or exceeding the 95th percentile, the additional reasonable labor, material and equipment required to implement the emergency plan may be paid for by Field/Change Order when the Consultant determines that such additional labor, material and equipment could not have been reasonably anticipated in the base bid emergency plan.

- c. As part of the base bid and Article V of the Agreement, for damages caused by ambient exterior weather conditions, provide all reasonable materials, labor and equipment, which may be in addition to those required for the work and/or required to perform stabilization, removals and corrective work caused by severe weather.
 - i. For conditions meeting or exceeding the 95th percentile, the additional time required for corrective work may be paid for by Field/Change Order when the Consultant determines that such time could not have been reasonably anticipated in the base bid emergency plan.
- d. The plan shall describe:
 - i. how weather conditions will be monitored,
 - ii. which forecast weather conditions require emergency preparations,
 - iii. what emergency preparations are required during the anticipated conditions of the job site during the time of the work, including removal of precipitation, securing materials, chemicals, temporary facilities work in place and other steps that could be reasonable anticipated,
 - iv. when such emergency preparations will be implemented,
 - v. who will implement the preparations,
 - vi. who will check the completed preparations to confirm they meet the intent of the plan,
 - vii. who will communicate the plans to local emergency responders,
 - viii. how the site will be monitored during severe weather,
 - ix. who will be on standby to return to the site when permitted by local emergency responders,
 - x. how the damage, if any, will be assessed.
- e. The emergency plan shall be available for review by the Consultant within four (4) hours or less notice during non-working hours and within thirty (30) minutes during working hours.

01 35 13 10 Salvage of Materials

1. Remove and legally dispose of all debris and other materials resulting from the alterations to State University property. The following items shall remain the property of the Campus and shall be stored at the site as directed by the Consultant:

(Unless removed by Campus in advance of work)

Monitor at Lobby West Wall, per photo L-2/D.001

Desk at Lobby East Wall, per photo L-6/D.001

Pipe Grid at Gallery ceiling, per drawing 1/D.801

01 35 23 Safety and Protective Facilities

1. The Contractor shall provide the necessary safeguards to prevent accidents, to avoid all necessary hazards and protect the public, the Campus staff, students, visitors, the work, and property at all times, including Saturdays, Sundays, holidays and other times when no work is being done. The Contractor's Safety Procedures Manual shall be certified by a Certified Safety Professional from the Board of Certified Safety Professionals (www.bcsp.org).

- a) Prior to beginning any work on site, submit an OSHA compliant site specific Safety Procedures Manual that identifies all site-specific safety issues related to this work and details how each will be addressed. In accordance with OSHA, hold weekly “Tool Box” meetings with jobsite personnel to discuss safety and fire prevention topics as required by NFPA 241 and as recommended in its Annex A, Explanatory Material.
 - b) Provide the appropriate “competent” person(s) (as defined by OSHA) on site during the performance of work.
2. The Contractor shall erect, maintain and remove appropriate barriers or other devices, including mechanical ventilation systems, as required by the conditions of the work for the protection of users of the project area, the protection of the work being done, or the containment of dust and debris. All such barriers or devices shall be provided in conformance with all applicable codes, laws and regulations, including OSHA and National Fire Prevention Association (NFPA) 241, for safeguarding of structures during construction. Provide a copy of NFPA 241 for use on site during the work. Barriers shall be made from noncombustible and/or fire retardant materials. As appropriate to the risk and when requested, provide periodic inspections of the safety and protective facilities by competent individuals. Promptly correct any deficiencies observed.
- a) Prior performing any removals or construction that impairs free egress from existing building exits to areas of refuge remote from the buildings, complete the installation of all temporary fencing, barricades and walkways. Install temporary egress, stairs, ramps and paths around work areas that comply with the Existing Building Code of NYS, Chapter 15 - Construction Safeguards.
 - b) Sequence the construction work to minimize the relocation of the above barriers and walkways. Install, relocate and modify the construction safeguards, barriers and covered walkways as required to perform the work in a manner that limits the temporary closure of any egress path to the least amount of time possible. If any egress path requires closure that is not shown on the drawings, that closure may not be able to occur during normal business hours of the buildings. Where permitted by the Code and if approved by the Campus and the Consultant, portions of interior corridors, aisles and passageways may be closed for limited time periods if such portions are under continuous supervision of the Contractor and the Contractor has a reasonable plan to divert and direct exiting occupants during an emergency.
 - c) When existing stairs are not available for the Contractor’s use, provide a stair when construction work areas are four stories above or below the exit to staging areas on the adjacent grade. The existing/permanent stairs of the Project may be used by the Contractor if the stairs are in essentially new/repaired condition prior to the Fund’s acceptance of the structure. Where the existing/permanent stairs are not available for the Contractor’s use, provide a noncombustible temporary stair meeting the following requirements:
 - 1) Clear width of stair and landings shall be 36” with 6’-8” clear headroom.
 - 2) Riser height shall not exceed 7” and tread width shall not be less than 11”.
 - 3) Handrails shall be on both sides between 34” and 38” above tread/landing, be continuously graspable and have a 1 ¼” circular cross section.
 - 4) Each level will have clear signage identifying the level, stair and exit path.
 - d) Prior to starting demolition, to maintain occupied spaces with their current services and utilities, trace all services and utilities, identify their respective areas and zones of service, both within the work area and outside to work area. Two weeks prior to start of demolition, submit a written plan

for each service and utility describing how such services and utilities will be temporarily maintained, shutdown, disconnected and cut, and/or permanently reconnected. Field tracing, testing and identification of services and utilities that requires their temporary shutdown will be done after hours or on weekends.

- 1) The plan should clearly identify any impairment of fire protection system(s), exit signs, exit lighting and/or other code required life safety systems. Add dates and durations of impairments to the Project Schedule.
 - 2) The Project Schedule should allow for the presence of the Campus Fire Prevention Program Superintendent at the time fire protection system(s), exit signs, exit lighting and/or other code required life safety systems are shut off and at the time such systems are restored to partial/full service.
 - e) When moving any items (materials, equipment, supplies, tools or other items) through exits, exit access spaces and site areas shared with the campus during occupied hours, provide radio equipped flagger(s) whose sole responsibilities are: (1) to direct pedestrian and vehicular traffic as required to permit the safe transport of the items from the staging area to the work area; (2) to inspect the paths traversed to confirm that they are clean, safe and ready for the campus to resume using; and (3) to confirm that gates, doors, fences, barricades and other temporary controls intended to separate the public from the area(s) controlled by the Contractor are properly restored.
 - f) Other than materials required for a work shift, storage of materials shall not be permitted in building spaces shared with the campus. Do not leave any materials, equipment, partially installed work, etc. in a manner that prevents full operational access by the campus to the spaces outside the areas controlled exclusively by the Contractor. Only the material which can be used in one shift shall be moved into the spaces shared with the campus. All other material shall be stored in the areas exclusively controlled by the Contractor. During the work shift, materials, tool boxes, etc. may be dispersed throughout the work locations shared with the campus, as required to perform the work, but shall be continuously attended to, neatly organized and located in a manner that does not create tripping hazards and/or reduce the clear travel path of exits and exit access spaces. All tools and excess material, if any, dispersed through the work locations shared with the campus shall be collected prior to the end of each shift and moved to the approved staging area.
 - g) The contractor shall leave the interior building access path to and from the work areas vacuum clean after the completion of each day's work.
3. Fire safety during construction:
- a) If required by the nature of the work and campus regulations, the Contractor shall obtain from the Campus and pay all costs associated with "Confined Space Permits" or "Hot Permits" to execute the work of its contract. Perform hot work in accordance with the Fire Code of New York State and the Hot Work Program approved for the work. Prior to, during and after performing hot work, inspect the hot work area for compliance with the requirements of the permitted Hot Work Program.

See applicable permits and conditions bound elsewhere in this Manual (01 00 00 General Requirement Reference Documents).

- b) Take all reasonable precautions against fire in accordance with good fire engineering practice. Provide all temporary plans, maintenance, programs, equipment, labor and material required for compliance with the applicable provisions of the Fire Safety During Construction and Demolition chapter of the Fire Code of New York State (FCNYS) in the New York State Uniform Fire Prevention and Building Code.
- c) For areas and spaces under their control, the Contractor shall comply with applicable provisions of the Fire Safety During Construction and Demolition chapter of the Fire Code of New York State (FCNYS) in the New York State Uniform Fire Prevention and Building Code. The Campus Fire Prevention Program Superintendent will develop a project specific Fire Prevention Program required by Section 3308 of the FCNYS. The Contractor's superintendent shall be responsible for reviewing the Fire Prevention Program for coordination with the Contractor's work plan, adhering to the provisions of the Fire Prevention Program and implementing the minimum safeguards for construction, alteration, and demolition operations that provide reasonable safety to life and property from fire during the Contractor's operations. The Contractor's superintendent shall also cooperate with the Campus Fire Prevention Program Superintendent, respond to questions raised concerning fire safety and take prompt action to correct conditions which do not meet the applicable provisions of the Fire Safety During Construction and Demolition chapter of the Fire Code of New York State (FCNYS) in the New York State Uniform Fire Prevention and Building Code and the project specific Fire Prevention Program.
- d) Use noncombustible material (metal or fire retardant material) for scaffold, trash chutes, forms, shoring, bracing, temporary stairs, ramps, platforms and boxes when such items are required during the work.
- e) When permanent sprinkler and/or standpipe systems are installed as part of the work, sequence the installation of these systems in a manner that closely follows the construction work, allowing the systems to be partially or fully operational within construction work areas, as required by NFPA 241 and as recommended in its Annex A, Explanatory Material. When permanent/existing sprinkler and/or standpipe systems are modified as part of the work, sequence the modifications of these systems in a manner that minimizes the duration of time for impairment of the systems.
- f) The "Construction Fire Safety Weekly Review" form and other documents that may be developed by the Campus Fire Prevention Program Superintendent may be used during the inspection program required by NFPA 241 7.2.4.4. A copy of the Construction Fire Safety Weekly Review is bound elsewhere in this Manual.
- g) Be responsible for dust control and cleanup. Provide dust curtains, ventilation and negative air machines when grinding or cutting inside the building. Use enclosed chutes whenever materials are dropped more than 10 (ten) feet.
- h) All extension cords, cables and hoses shall be maintained at least 6 feet 6 inches above the working floor. Where this is impossible, these items shall be inspected daily and repaired immediately or tagged and removed from use until repaired.
- i) Store flammable and combustible liquids and flammable gases used during the work in compliance with the Fire Code of New York State.

01 35 23 10 Safety Data Sheet

1. The contractor shall submit SDS (Safety Data Sheet) for all chemicals, solvents, and materials specified or proposed to be used on this project.

01 35 29 10 COVID-19 Contractor Requirements and Guidance for Construction Jobsites

1. The Contractor shall comply with the NYS DOH COVID-19 Guidance in effect at the time of the bid. Such Guidance is made a part of the contract work for this Project. All costs and time associated with compliance with the Guidance are included in the Contract consideration in Article IV of the Agreement. The current Guidance, as may be amended or superseded, is available at the following website:
<https://coronavirus.health.ny.gov/home>

01 35 43 Environmental Procedures

1. Employ measures to prevent creation of air pollution and odors.
 - a) On interior work and work adjacent to occupied areas, all passageways and vent systems will be sealed to prevent dust, air pollution, and odors from traveling into occupied areas. Take measures to ensure proper separation in accordance with Section 01 35 23. Ensure that the integrity of the separation is maintained throughout the period of the work. In the event any trade must remove a barrier in whole or in part, it is their responsibility that the barrier is reconstructed at the end of each work period.
 - b) Perform exterior work adjacent to air intakes, doors, windows and/or other passageways that may convey odors but cannot be sealed without impacting campus operations during weekends, second or third shift or other off hour periods that mitigates the impact to campus operations. Seal openings with fire-retardant poly tenting or equivalent. Allow sufficient time to install temporary barriers at the beginning of each off-hour period and remove barriers at the end of each off hour period.
 - c) If the emission of construction related odors is found to be offensive by building staff, work will stop and efforts to effectively exhaust the odors will begin immediately. Continuance of the odor causing work will be permitted during non-occupied times.
 - d) No gasoline/diesel powered engines are permitted inside a Campus building.

01 35 73 Delegated Design

1. At the request of the Consultant and in compliance with the Rules of the New York State Board of Regents, the Fund has allowed the Consultant to delegate to the Contractor certain portions of the design of the work. These portions are listed below in the Schedule of Delegated Design. For portions of the work where design has been delegated, the Consultant has provided, elsewhere in this Project Manual, the complete parameters which the design must satisfy and other requirements. The

Contractor shall assign responsibility for the design of the delegated portions of the work to person(s) who are New York licensee(s), or otherwise authorized, who shall sign and certify his/her design work and who are approved by the Consultant.

2. Schedule of Delegated Design in the Technical Specifications:

Project No. 291036-01
Project Title: Renovations
to Relocate Admissions for
Rehab of Administration
Bldg – Phase 1A

Section Number	Section Name	Description of Delegated Design (See Section for complete details)
21 05 30	Sprinkler System	Refer to Specification and Drawings for the performance requirements

Note: The above list provides a general summary of work delegated in the technical specifications and may not be all inclusive. In case of conflict or omission, the requirements of the technical specifications take precedence over the above list.

01 41 13 Code Compliance and Testing (In addition to Section 2.10 of the Agreement)

1. The Fund, if the same is required by law, will issue a Building Permit for this Project. The project is not subject to any local building code or permit requirements, except for work that the Contractor is to perform on property located outside of the boundaries of the campuses of the State University of New York or on systems or equipment within the boundaries that are owned or controlled by others such as utility companies.
2. Special Inspections: This project may contain work requiring Special Inspections in accordance with the Building Code of New York. The Fund and the Consultant shall exercise control to verify that the construction conforms to the contract documents. In addition to the requirements of Section 2.17 of the Agreement, cooperate with and provide safe access for inspection and testing agencies, as reasonable to allow inspections and tests to be performed. This will require the Contractor to provide and attend to / operate scaffolding, ladders, or lifts. This project may also contain work requiring the construction of a main wind- or seismic-force-resisting system, designated seismic system or a wind- or seismic-resisting components and the Contractor shall have provisions for quality control.
 - a) See the Statement of Special Inspections bound after this Section for the project specific Special Inspections program.

- b) Prior to start of work that requires code inspections, schedule pre-inspection meeting with the Consultant, Fund and Campus review required inspections and how and when they will be performed.
- 3. All work involving installation and modification to fire alarm systems shall be performed by individuals or firms currently licensed by the NYS Department of State, Division of Licensing Services. The contractor shall provide copies of the individual's or firm's current license and identification cards for all unlicensed employees performing work for the licensed individual or firm for this project. The Contractor shall post a copy of the license at a location approved by the Consultant.
- 4. In addition to the requirements of Section 2.17 of the Agreement, before performing system tests, partial system tests or scheduling inspections for fire alarm, fire suppression, electrical, mechanical, plumbing, elevator, site infrastructure and other work that must be completed for a Temporary Authorization to Occupy and/or a Code Compliance Certificate, attend pre-test and inspection meetings for each system with the Consultant.
 - a) Provide a list of all Contractor provided tests that are specified in Divisions 1 through 48, inclusive, and list portions of large systems tested separately (see 01 74 00, Clean-Up, for separation criteria), who will perform a test, when it will be done, who witnessed it and when, results (pass/fail), follow up action, comments and other information requested by the Consultant.
 - b) The Consultant will review the scope of inspection of the as built installation, review the completeness of the record drawings per Section 2.24 of the Agreement, review the scope applicable tests and review the applicable forms that will be completed as part of the testing and inspection.
 - c) Immediately after completion of tests, provide original forms with all information filled out plus six copies to the Consultant. Systems required for Substantial Completion will not be considered completed and accepted until all code required forms are completed, submitted and reviewed by Consultant for completeness. For fire protection systems, provide the Statement(s) of Compliance required by Fire Code part 901.2.1.
 - d) Where portions of systems are completed and ready for testing and inspection, those portions will not be considered completed and accepted until all code required forms are completed to the extent applicable to the portion of work completed, submitted and reviewed by Consultant for completeness.
 - e) Where portions of systems are excluded from the portions being tested, provide additional work required to functionally extend systems around the excluded portions and to fully separate the tested portions from the excluded portions.
 - f) Schedule testing that requires safety clearance or impacts campus activities (such as, but not limited to, x-ray testing of welds) and/or testing that requires utility shutdowns for weekends, holidays and/or 2nd or 3rd shift, as appropriate to accommodate the Campus and mitigate disruption to Campus activities.
 - g) Unless otherwise approved by the Fund, all Contractor provided tests that are specified in Divisions 1 through 48, inclusive, must be witnessed and signed off by the Consultant prior to

acceptance of the tested work; and, in the Contract Breakdown required by Section 4.08 of the Agreement, the scheduled value of Contractor provided tests shall be 5% of the amount estimated for the work being tested.

- h) In addition to the above testing, and if mechanical, hot water and/or lighting control systems are included in the work, cooperate with the Consultant to complete the commissioning of mechanical, hot water systems and functional testing of lighting controls. Provide a single competent person as the point of contact for all commissioning required in this contract. As applicable, provide workers, equipment, computer programming, fuel, power, means of access, operating instructions and manuals (see Section 01 78 23) and other work required to demonstrate installation, operation, functionality, calibration and other performance criteria of such systems.

01 41 16 Laws

1. "Diesel Emissions Reduction Act of 2006 (the "Act"):

- a. 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 by the Contractor, its Agents or Subcontractors under this Contract, will comply with the specifications and provisions of ECL section 19-0323 and any regulations promulgated pursuant thereto, which requires the use of Best Available Retrofit Technology ("BART") and Ultra Low Sulfur Fuel ("ULSD"), unless specifically waived by DEC. Qualification for a waiver under this law will be the responsibility of the Contractor.
- b. Annually, in the cycle determined by DEC and the Fund, the Contractor shall complete and submit directly to the Fund, via electronic mail, the Regulated Entity Vehicle Inventory Form and Regulated Entity and Contractors Annual Report forms at the Department of Environmental Conservation ("DEC") website for heavy duty vehicles used in the performance of this Contract for the preceding calendar year. Periodically, as requested by the Fund, the Contractor shall certify and submit the Contractor and SubContractor Certifications form, which states that the Contractor will comply with the provisions of Section 20.23.

Website: <http://www.dec.ny.gov/chemical/4754.html>

Inventory Form: <https://www.dec.ny.gov/fs/docs/spreadsheets/248inventory.xlsx>

Annual Report Form <https://www.dec.ny.gov/fs/docs/spreadsheets/248annrptfrm.xlsx>

- 2. Comply with Labor Law Section 220-h; provide workers certified as having successfully completed the OSHA 10-hour construction safety and health course; and comply with the applicable NYS DOL rules and regulations for monitoring and reporting compliance.
- 3. Title 10 of the New York Codes of Rules and Regulations (10 NYCRR), Part 4, "Protection against Legionella"
 - a. If the project involves the installation or modification to a "Cooling Tower" as defined per the NYCRR, the Contractor is responsible to provide maintenance, testing and reporting. These

responsibilities begin upon startup and operation of the "Cooling Tower" or anytime it contains water, it shall continue until the date of the end of the "one-year guarantee period" as defined per Section 2.25 of the Agreement.

- i. The Contractor's maintenance program and testing plan shall be submitted to the Fund, Campus and the Consultant for review and approval.
- ii. The Contractor's testing services shall include routine and immediate bacteriological and Legionella culture sampling and analysis as required per the NYCRR. It shall also meet all the requirements in the Campus' "Cooling Tower" maintenance program and plan developed for compliance with 10 NYCRR.
 1. Documentation of all maintenance, testing and reporting of the results shall be provided to the Fund and the Campus.
- iii. Copies of all maintenance and testing records shall be kept on the premises where the "Cooling Tower" is located.

01 51 13 Temporary Power for Construction Activities

1. Electrical energy, as/if it exists within the work area, will be available at no cost to the Contractor from existing outlets or panels from locations approved by the Campus. This power may be used for small power tools (not exceeding 1/2 HP), etc., and the Contractor shall not exceed the capacity of the existing circuits being used. The Contractor shall be responsible for providing all necessary connections, cables, etc. and removal of the same at completion of construction with approval from the Fund. The Contractor shall in no way modify the existing circuits at the panel boards to increase capacities of the circuits. If the required power load exceeds the capacities of the available power sources, the Contractor shall be responsible and pay for furnishing and installing all necessary temporary power poles, cables, fused disconnect switches, transformers and meters necessary to provide complete temporary power requirements for the project, and remove the same at completion. Install all temporary wiring and equipment and make all connections in conformity with the National Electrical Code and the Fire Code of New York State. Make all replacements required by temporary use of the permanent wiring system. Provide ground fault protection.
2. If, for any reason, the permanent power with necessary cable and connections is not available in time to test out the various mechanical and electrical systems of the Project at the time of its scheduled completion, the Contractor shall maintain and keep in use the temporary power facilities until such permanent power is tied in and fully energized.

01 51 16 Temporary Fire Protection

1. If the existing building is to be partially occupied during the course of the project, all existing exits except those shown for closure, fire walls, fire barriers and fire protection systems shall be continuously maintained in the occupied phases in compliance with the Fire Code of New York State and as required by NFPA 241 and as recommended in its Annex A, Explanatory Material, or other measures must be taken which in the opinion of the Consultant will provide equal safety. Those portions occupied by the campus must be available for their use 24 hours a day, seven days a week during the contract period unless otherwise scheduled in these documents. Comply with all applicable

State and Federal codes and regulations. Prior to removal of existing fire walls, fire barriers and fire protection systems, if such removal is part of the work, install equivalent temporary fire walls, fire barriers and fire protection systems. The cost of all labor, fire watches, variances, materials, installations, maintenance and removal of such temporary fire protection systems or modifications to the existing systems are the responsibility of the Contractor. Install permanent fire walls, fire barriers and fire protection systems, if provided as part of the work, as soon as practical and as required by NFPA 241 and as recommended in its Annex A, Explanatory Material.

2. Solid fuel salamanders and heaters shall not be used by the Contractor or any of its subcontractors. For all other salamanders used by the Contractor or any of its subcontractors, attend to their operation with competent persons in each space where in use.
3. All temporary fabric used by the Contractor or any of its subcontractors for curtains, awnings or other uses shall be either non-combustible or flame retarded so that it will not burn or propagate flame.
4. Fire Watch Requirements
 - a. This section applies to the work in this contract, if any, that 1) disables any fire suppression systems, standpipes systems, fire alarm systems, fire detection systems, smoke control systems and/or smoke vents as defined in Chapter 9 of the Fire Code of New State (FCNYS) or 2) involves welding, cutting, grinding, open torches and other hot work as defined in Chapter 26 of the FCNYS and / or 3) involves demolition activities that are hazardous in nature as defined in the applicable provisions of the Fire Safety During Construction and Demolition chapter of the Fire Code of New York State (FCNYS) in the New York State Uniform Fire Prevention and Building Code. In accordance with Section 901.7 of the FCNYS, for structures that have campus occupancy, either provide a fire watch or perform the work during the hours where the building is scheduled by the campus to be closed. If a fire watch is required, provide all labor that is required. The Contractor shall:
 - 1) Contact the New York State Department of State Office of Fire Prevention and Control (OFPC) at Phone: (518) 474-6746, by email: fire@dhses.ny.gov and obtain its currently amended recommendation for fire watch procedures. Review the OFPC recommendations and notify the consultant if there are significant discrepancies with the requirements of this section.
 - 2) Review the fire watch procedures with the Campus Fire Prevention Program Superintendent, campus alarm monitoring staff, and the fire department prior to disabling a fire protection system. Submit the plan for the fire watch for approval by consultant and campus, and schedule pre-system shutdown meeting with consultant, campus and Fund. The plan should describe how false alarms will be managed and who will be responsible for fire and police departments costs for responding to false alarms..
 - 3) Employ, instruct and maintain competent fire watch personnel. Provide the sufficient number of dedicated personnel that are required to patrol all portions of the means of egress system in the facility in the period of time required.
 - 4) Notify the campus alarm monitoring staff prior to and at the conclusion of the fire watch.

- 5) Notify the local fire and police departments that the system is “Out of service” and again when the system has been repaired or restored to service.
 - 6) Employ competent personnel to fix the fire protection system(s).
- b. Fire Watch Duties: Personnel serving as a fire watch have the following duties:
- 1) Conduct periodic patrols of the entire facility as specified below.
 - 2) Identify any fire, life or property hazards or the warning signs of fire.
 - 3) Notify the campus alarm monitoring staff and the fire department if a fire is discovered by calling 911 with the exact address and type of emergency.
 - 4) Notify occupants of the facility of the need to evacuate. If the sirens or public address function of the alarm system are still functional, use them to assist with evacuation of the building.
 - 5) Have access to at least one means of direct communication with the fire department. A telephone is acceptable.
 - 6) Maintain a written log of fire watch activities
 - 7) Have knowledge of the location and use of fire protection equipment, such as fire extinguishers. (Note: The fire watch will not perform fire-fighting duties beyond the scope of the ordinary citizen.)
 - 8) Perform no other duties that are not directly part of the fire watch duties.
- c. Frequency of Inspections: Fire watch personnel should patrol the entire facility every 30 minutes except in the following situations, where patrols shall be every 15 minutes:
- 1) The facility has people sleeping.
 - 2) The facility is an institutional occupancy.
 - 3) The facility is an occupied assembly or educational occupancy.
- d. Record Keeping: A fire watch log should be maintained at the facility. The log should show the following:
- 1) Address of the facility
 - 2) Times that the patrol has completed each tour of the facility
 - 3) Name of the person(s) conducting the fire watch.
 - 4) Record of communication(s) to the fire department and monitoring company.
 - 5) Record of other information as directed by the Consultant and the Fund.

01 51 23 Temporary Heating and Cooling

1. Heat and cooling, as/if it exists within the work area, is available to the contractor at no cost. If the existing heating or cooling does not meet the requirements indicated below or as required in the specifications, the Contractor shall supplement or supply the same, maintain it during the construction period, and remove it at the conclusion of the project, at its cost. Such supplemental heating and cooling shall be in compliance with all applicable, codes, rules and regulations. Provide temporary heating in accordance with the Fire Code of New York State. Completely remove from the project any coatings or residues created by the temporary heating system when they may be detrimental to the proposed finishes.
2. The Contractor shall provide and pay for all temporary heating and cooling, coverings and enclosures necessary to properly protect all work and materials against damage by dampness and cold, dry out the work, and facilitate the completion thereof. The fuel, equipment, materials, operating personnel and the methods used therefor shall be at all times satisfactory to the Consultant and adequate for the purpose intended. Provide temporary heating in accordance with the Fire Code of New York State. Equipment and fuel used shall not create and inject products of combustion or particulates into the work spaces. The Contractor shall maintain the critical installation temperatures, provided in the technical provisions of the specifications hereof, for all work in those areas where the same is being performed. Completely remove from the project any coatings or residues created by the temporary heating system when they may be detrimental to the proposed finishes.
3. The maintenance of proper heating, cooling, ventilation and adequate drying out of the work is the responsibility of the Contractor and any work damaged by dampness, insufficient or abnormal heating or cooling shall be replaced to the satisfaction of the Consultant by and at the sole cost and expense of the Contractor.
4. After the Project is enclosed, the Contractor shall provide all necessary, temporary heating and cooling for the efficient and effective work by itself and all trades engaged in the work. Unless otherwise specified, the minimum temperature shall be 50°F at all places where work is actually being performed within the enclosed Project
 - a) Provide a minimum of twelve (12) calibrated data loggers to record temperature and relative humidity or one per every 5,000 square foot of project floor space, whichever quantity is greater. The initial location of the data loggers and any relocation required during the progression of the project shall be as directed by the Consultant. Periodically record data, change batteries and perform other maintenance needed to keep the data loggers functional at all times during the work. Show the locations, date installed and date moved on the Record Drawings required by Section 2.24 of the Agreement. Upon request the electronic data shall be provided to the Consultant.
 - b) Data loggers shall be HOBO MX1101 by Onset or equivalent with Accuracy: +/- 0.2C and +/- 2%RH.
5. Before and during the placing of wood finish and the application of other interior finishing, flooring, varnishing, painting, etc., and until Substantial Completion of all work covered by the Contract, the Contractor shall, unless otherwise specified in the Contract Documents, provide sufficient heat or cooling to produce a temperature of not less than 68°F nor more than 78°F. In addition, if products being installed, finished and/or maintained require stricter temperature and relative humidity's

ranges per the manufacturer(s) written recommendations, those conditions must be maintained during the time periods recommended by the manufacturer(s).

6. After the structure is enclosed and subject to the availability of fuel and continuous operation generating capacity of the State University of New York, the permanent heating and cooling system of the Project may be used by the Contractor, with the approval of the Consultant and the Fund, to provide temporary heating and cooling. In the event the Contractor so uses the permanent heating and cooling system:
 - a) It must place said system in perfect working order and in essentially new condition prior to the Fund's acceptance of the structure;
 - b) The period of the guarantee of the system will commence at the discretion of the Fund upon either early acceptance of the heating and/or cooling systems or at the time of the Substantial Completion of the structure; and
 - c) The Contractor must reimburse the State University of New York for the total amount of electrical energy, fuel or BTUs it uses, at the same rate the State University of New York pays for electrical energy (\$ per kw – hr), fuel (\$ per BTU) or to deliver heating energy (steam, hot water and/or HTHW) and/or chilled water (\$ per BTU). SUNY's 2010 heating energy and chilled water costs are \$0.00002 per BTU. The amount of such use to be determined by a reading of a separate meter, furnished, installed, maintained, and upon completion of the Project, removed by the Contractor.
 - d) If meters are not installed, then the Contractor can reimburse SUNY based on a gross square foot (GSF) calculation for each day that it uses campus fuel or electricity. For cooling (electric) use, the calculation is: $(0.32) \times (\text{GSF}) \times (\$ \text{ per kw-hr}) = (\$ \text{ per day})$. For heating (fuel) use, the calculation is: $(840) \times (\text{GSF}) \times (\$ \text{ per BTU}) = (\$ \text{ per day})$. SUNY's energy cost for 2010 are: heating fuel at \$0.000016 per Btu and cooling (electric) at \$0.093 per kW-hr.
 - e) Notwithstanding the foregoing, the Contractor shall not be required to reimburse the State University of New York for the electrical energy or BTUs it uses in the four (4) weeks immediately preceding the date of Substantial Completion, as this is considered, for the purposes of this Contract, the testing period for the permanent heating system.
7. As part of the base bid, for ambient exterior weather conditions, include conditions up to the 90th percentile coldest recorded seasonal conditions and accumulated degree days recorded at the nearest National Weather Service site.

01 51 26 Temporary Light

1. Electrical lighting, as/if it exists within the work area, is available to the contractor at no cost. The minimum temporary lighting level to be maintained at stairs and exit corridors is 1/4 watt per square foot and it will be maintained for 24 hours, 7 days per week; in all other spaces, temporary lighting at the same level is to be maintained during working hours. If the existing lighting does not meet the aforementioned requirements, the Contractor shall supplement or supply the same, maintain it during the construction period, and remove it at the conclusion of the project, at its cost. Such lighting shall be Underwriter's Label temporary lighting sockets, light bulbs, and intermittent power sockets

as approved by the Consultant. Installation shall be in accordance with the National Electric Code and the Fire Code of New York State.

2. The Contractor shall install, maintain and, when necessary as a result of construction progress and at the completion of all work or at such earlier time as the Consultant may approve, remove pigtailed type Underwriter's label lighting sockets, light bulbs and intermittent power sockets. The temporary lighting requirements shall be installed in the structure as soon as the frame is completed and work begins on the enclosing walls. The minimum temporary lighting to be provided is at the rate of one-quarter watt per square foot, is to be maintained in each room and changed as required when interior walls are being erected. The required temporary lighting must be maintained for twenty-four (24) hours a day and seven (7) days a week at all stair levels and in all corridors below ground; in all other spaces temporary lighting is to be maintained during working hours.

01 51 36 Temporary Water for Construction Purposes

1. Water for construction is available through the campus system without charge to the Contractor from location designated by the College. The Contractor shall obtain the necessary permission, make all connections, as required, furnish and install all pipes, fittings and reduced pressure zone backflow prevention device (tested before use), insulate piping, and remove the same at completion of work. The Contractor must provide for waste water discharge and shall take due care to prevent damage to existing structures or site and the waste of water. All pipes and fittings must be maintained to the satisfaction of the campus at all times. Temporary water system shall comply with the Fire Code of New York State.

01 52 13 Field Office for the Consultant

Not Required

01 52 19 Temporary Sanitary Facilities

1. The Contractor will be permitted to use existing toilet and janitor closet facilities as designated by the Campus provided the existing facilities are not misused, defaced, or left in an unsanitary condition. If the Consultant deems that the existing facilities have been subject to misuse or left unsanitary, the Contractor shall be informed and caused to install and maintain (at its own cost) temporary, sanitary facilities at an approved location. The Contractor shall also be held responsible for the cost of cleaning and repair of any damage to said existing facilities and adherence to health and sanitary codes of the State of New York.
1. The Contractor shall install, maintain and, at the completion of all work or at such earlier time as the Consultant may approve, remove temporary sanitary facilities. From the commencement of work until the frame of the structure, if the Project involves a structure, is erected, such facilities shall be of the chemical type, shall be placed at locations approved by the Consultant and shall be screened from the campus population. As soon as the frame of the structure has been erected, water supply and sanitary drainage connections shall be promptly made by the Contractor and temporary toilets, using the permanent piping system of the structure, shall be installed by the Contractor and maintained by it until completion, at which time they are to be removed by it. Permanent toilets and room finishes installed under the Contract shall not be used during construction of the Project unless the Contractor has an approved plan for periodic custodial

services that maintain toilets and finishes in like new condition until their acceptance by the Fund.

- a. The amount of sanitary facilities required shall be based on the total number of workers employed on the Project and shall be in accordance with the provisions of the Health and Sanitary Codes of the State of New York. Maintain all units in a clean and sanitary condition. At the minimum, clean on a weekly basis, and more often as required by the applicable sanitary codes for this occupancy. Provide all toilet supplies as required, including toilet paper, soap, paper towels, and waste receptors.

01 54 13 Use of Elevator(s) for Construction

1. When approved by the Consultant, the Contractor shall be permitted to make temporary use of elevators installed during the work (if any) and existing elevator(s) designated by the campus (if any), provided such use does not interfere with the normal activities of the Campus or exceed the capacity of the elevator(s).
2. The use for construction purposes is a new use that was not contemplated during the design of a new elevator and/or the previous acceptance inspection of an existing elevator performed for the campus. In accordance with 8.10.5.10 of ASME A17.1, prior to using an elevator for construction, provide an inspection to confirm that the elevator installation supports the proposed new use.
3. Large and heavy items shall not be placed in elevators, and suitable padding shall be provided whenever a cab is used for construction purposes. Elevator pits shall be kept free of debris and dust by frequent cleaning out.
4. The elevators shall be maintained and restored to original condition satisfactory to the consultant and the Fund at the end of construction activities. If existing elevator(s) are used during construction, provide additional inspections and maintenance required due to construction usage. Prior to use for construction purposes, contact the existing elevator maintenance vendor and arrange for performance of the additional maintenance required due to construction usage.
5. If the elevator is used during construction, provide periodic inspections, as required by in accordance with Table N1, Appendix N, of ASME A17.1. Acceptance and periodic inspections shall be performed by an independent ASME A17.1 Qualified Elevator Inspector employed by a firm specializing in elevator inspection paid for by the Contractor.
6. If the project includes a new elevator(s), it may be used for construction purposes (other than elevator related construction and maintenance) when approved by the Consultant and at the point in completion of the work when the Contractor demonstrates that there is no reasonable temporary hoist option. Submit a written request for approval describing the construction purposes, usage, loads, periodic maintenance, inspections, anticipated wear due to usage, emergency usage plan (if required by the local fire department), and other information that may be requested by the Consultant. Attach to the request a letter from an independent ASME A17.1 Qualified Elevator Inspector (employed by a firm specializing in elevator inspection paid for by the Contractor) recommending the proposed use(s).

- a) Immediately prior to the end of the construction use and maintenance period, clean all portions of the shafts, exterior of hoists, machine rooms and other areas accessible only to elevator technicians.
- b) Do not install the permanent flooring in the elevator until directed by the consultant.
- c) Prior to the end of the construction use and maintenance period, inspect all portions of the elevator systems, shafts and other work required for proper elevator operation in the presence of staff from the firm providing maintenance for the Campus and perform corrective work, if any, identified during this inspection prior to the end of the maintenance period.
- d) Update operating system firmware and other software to the latest applicable versions.
- e) If the a new elevator is used by the Contractor for construction purposes, it shall also be made available for use by the campus during installation of its furniture, fixtures and equipment (as further described in Section 01 11 13, Coordination with Other Contracts), unless such campus use is inconsistent with the contractor's use as permitted in 8.10.5.10 of ASME A17.1 and contrary to the written recommendations of the Contractor's ASME A17.1 Qualified Elevator Inspector.

01 55 19 Temporary Parking

- 1. Unless otherwise specifically noted, there is no free parking available on site. The Contractor and its employees shall be subject to all the rules and regulations of the SUNY campus, including parking regulations. Parking violations are subject to fines and are the sole responsibility of the Contractor or its employees. Parking within contract limit lines as shown on the drawings will be at no cost for the Contractor and its employees. However, if there is not enough space for all its employee parking and /or its employees choose on their own to use campus parking spaces, additional Contractor employee parking may be permitted and arranged within Campus parking lots on a limited basis, as approved by the Campus and subject to applicable campus traffic regulations and parking fees.
- 2. All vehicles are required at all times to be registered with the Campus' Public Safety Unit. Campus roads are subject to the New York State Vehicle and Traffic Laws, which shall be followed at all times by the Contractor's vehicle operators. All unlicensed work vehicles used by the Contractor shall be moved on campus roads through one of the following methods only:
 - a) Escort the unlicensed vehicle with two licensed vehicles with flashers, one in front and one behind the unlicensed vehicle.
 - b) Transport the unlicensed vehicle on a licensed flatbed or other licensed transport vehicle.
- 3. All costs associated with temporary parking, both direct and indirect, shall be considered included in the base bid. Costs may include staging area improvements, permits, wage premiums, and contractor time, labor, effort, etc.

01 55 26 Traffic Control during Construction

[Not used]

01 55 29 Staging Area and Storage of Materials

1. The Contractor shall store materials and equipment within the Contract Limit Lines as designated on the drawings or as approved by the Consultant, and in compliance with the Fire Code of New York State. Sequence and manage the work to account for the extremely limited space for storage and work-related activities provided in the available staging area.
2. All materials shall be stored in a neat and orderly manner and shall be protected against the weather by a weatherproof temporary storage facility or trailer. Protect material during shipping against any damage from weather, including road salt.
3. Security for stored materials shall be the responsibility of the Contractor.
4. Storage of materials is not permitted on the roof of any building.
5. The Contractor, at its expense and in compliance with the Fire Code of New York State, will be permitted to place its storage, trailer/field office(s) with appropriate utilities, and other temporary structures within the Contract Limit Lines as indicated on the drawing or as approved by the Consultant. Prior to installing and/or relocating any such structure, provide a layout showing separation distances in accordance with NFPA 241, Table 4.2.1.
6. Access to the construction site for delivery of materials and equipment shall be as indicated on the drawings or as approved by the Consultant. Temporary parking for the loading and unloading of the same shall be arranged with prior approval of the Campus.
7. The Contractor shall always keep access routes, and parking and staging areas clean of debris and other obstructions resulting from the work.
8. If petroleum products are brought on campus in stationary containers of 55 gallons or larger, the Contractor shall provide a certification to the campus, stamped by a professional engineer currently licensed in New York State, that product storage, spill prevention, training, testing, inspections, handling and dispensing methods are in compliance with all applicable federal and state rules and regulations, including EPA rule 40 C.F.R. Part 112. The campus may add the contractor's certification(s) to a Oil Spill Prevention Control and Countermeasure (SPCC) Plan. This certification shall be provided to the Fund two weeks ahead of any product or container(s) delivery and the campus shall be notified promptly of the removal of any container(s).
9. Prior to utilization on this project, the locations of cranes, mixers, boom trucks, forklifts, welding machines, generators, field offices, workbenches, cutters, hose lines, etc., must be reviewed in a pre-installation meeting with the Consultant. In addition, submit a complete lifting procedure safety plan, operator's license, an annual inspection report, and a current inspection certificate for each crane, boom or lift proposed. Prior to and during any lifting, properly erect, remove, maintain and replace any required safety and/or traffic barriers.
10. Provide a chain link fence around staging, storage, parking, etc. areas that is 8'-0" high. Cover all fence fabric with black closed mesh woven polypropylene with 95% blockage and finished with binding and grommets. Reinforce posts and add additional posts and braces as required to support the additional wind load created by installation of the fabric. Secure fabric at 2'-0" by 2'-0" grid intervals and inspect and repair all attachments points monthly. Tears or holes greater than 6" in one dimension shall be repaired weekly. Minimum post size shall be as required for a 70 mph wind. Gates shall be a minimum of 20 feet across, double swing leaves with a drop rod to secure them in place while in the closed position. All gates shall include heavy duty padlocks, keyed alike, with 10 spare keys for each given to the Consultant for distribution. Provide

continuous top and bottom rails. All areas within the fence shall have all grass, weeds, etc. mowed when it exceeds 6" in height. Contractor shall clear snow as necessary within fenced areas. Snow from within the fenced areas shall be moved outside the fenced areas, transported and legally disposed of offsite. Snow outside the Contract Limits will be removed by the campus. Set fence posts and supports in the manner that facilitates the removal of snow by the campus. True and plumb the fence posts on a monthly basis.

11. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated. The use of drone(s) during work on site is contingent on written approval from the campus.
12. Contractor shall clear extraneous matter (snow, precipitation, wind bourn organic matter, bird/animal carcasses, etc.) from work areas as necessary to perform work. Extraneous matter from within the work areas shall be moved outside the work areas, transported and legally disposed of offsite. Extraneous matter outside the Contract Limits will be removed by the campus.
13. Contractor shall clear the pedestrian walkways & access ways of snow along all perimeter locations. Contractor is also responsible for keeping clean and year round maintenance of all temporary pedestrian walkways surrounding the project site. Snow outside the above areas and Contract Limits will be removed by others. Snow removal must be completed no later than 6:30 am each day (Off-hour work shall be included at no additional charge).
14. This Contract includes the off-site storage costs of any material or equipment until the building is sufficiently complete to receive that material or equipment.

01 56 19 Noise Mitigation Measures

1. Employ the following measures during the work of this contract:
2. Maintain all construction tools and equipment so that they operate at normal manufacturer's operating specifications, including at peak loading. Maintain noise created by tools and equipment below the levels in the noise level guidelines in the Federal Highway Administration Roadway Construction Noise Model User's Guide, as currently amended, page 3 (the Guide). If an individual piece of equipment exceeds the level specified in the Guide, then either perform maintenance to demonstrate a good faith effort, notwithstanding the model year of the equipment, to mitigate the noise by a measurable level acceptable to the Consultant, or to replace the equipment with equipment that complies with the level in the Guide.
3. Equip all tools and equipment being operated on site with the appropriate manufacturer's recommended noise reduction device(s), including a muffler and jacket, free from air or exhaust leaks.
4. Equip specialized vehicles with noise-insulating material that does not interfere with the engine operation and/or other manufacturer recommended techniques to reduce noise. Prevent all unnecessary vehicle engine-idling on site. Equip all vehicles with the installation of quieter backup warning devices where permitted by OSHA.

5. Cover portable compressors, generators, pumps and other such devices with noise-insulating fabric, employed so as not to interfere with engine operations, or employ other manufacturer recommended techniques to reduce noise.
 - a) Implement a formal noise mitigation training program for all field-worker supervisory personnel including sub-contractor supervisors. Supervisory personnel shall field-train all field workers in an effort to minimize construction noise.
 - b) Cooperate with the Campus to coordinate the work whenever possible so as to minimize the impact on the facility and use quieter devices and other noise mitigation methods, such as blankets and barriers.

01 57 23 Storm Water Construction Permit Responsibilities

[Not used]

01 58 13 Project Sign

1. No Contractor identification signage shall be erected or hung from fencing or other construction without the approval of the Fund. Contractor shall provide specific text, size, location, and number of signs for approval of the Fund.
2. The Contractor shall furnish, erect and maintain, at the site of the work, the exact location thereof to be designated by the Consultant, a construction sign, in the form prescribed by the Contract Documents, containing the title of the Project, the Fund's name, the names of the Consultant, Contractor and subcontractors engaged in work on the Project and such other data and information as may elsewhere be prescribed in the Contract Documents.

01 60 00 10 U.S. Steel

1. All structural steel, reinforcing steel, or other major steel items to be incorporated in the work shall, if this Contract is in excess of \$100,000, be produced or made in whole or substantial part in the United States, its territories or possessions. Upon request from the Consultant, provide information from suppliers, fabricators and installers identifying the place of manufacturer and the country of origin for all steel items incorporated into the work.

01 60 00 20 Non-Asbestos Products

1. All materials specified herein shall contain no asbestos.
2. Provide "Contains No Asbestos" permanent labels applied to the exterior jacket of all pipe insulation at 20 foot intervals with a minimum of one (1) label for each service in each work area.
3. The use of vermiculite in products and systems installed in the work is acceptable if the product /system manufacturer provides the MSDS sheet showing that no asbestos is present and submits a certification of the origins of the vermiculite showing that it is not from a mine contaminated with asbestos.

01 60 00 30 Products

1. All products shall be new and installed on the project within one year of manufacture, and no recycled, reconditioned, or reused products shall be used unless expressly noted otherwise in the technical specifications.

01 64 00 Campus-Furnished Products

1. The Campus will furnish products from the named manufacturer(s) indicated below that are currently available using New York State Office of General Services (OGS) Procurement Contracts (State Contract) in existence on the day bids are received.
 - a. 10 14 00 Signage
 - b. 12 24 13 Window Shades
2. Except for furnishing the products indicated above, the Contractor will be responsible for using, performing, installing, furnishing and supplying of all materials, equipment, skill and labor of every kind, incidentals, and also those things which may be reasonably inferable from the Contract Documents as being necessary or proper for or incidental to the successful completion of the systems into which the products are installed; and the Contractor will be responsible for carrying out of all duties and obligations imposed by the specification sections that include Campus furnished products. The Contractor's responsibilities are same as if Contractor had furnished the products, including providing other products from the named manufacturers that are not currently available on State Contract, which are necessary for the complete installation of the systems specified.
3. The named manufacturer shall review its makes or model numbers and/or other designations listed in its State Contract and it shall allot all the work required of it in this Contract between its existing State Contract and its subcontract with the Contractor. Whatever the allotment, the named manufacturer acknowledges that it will make its work complete and operational and in compliance with good practice and it agrees that inadvertent minor discrepancies or omissions shall not be the cause for additional charges or claims.
 - a) The Fund, Campus and the Consultant assume no responsibility whatever for this allotment, except that the Campus agrees to purchase the named manufacturer's products using the State Contract.
 - b) The named manufacturer shall provide a list of the products, in the form prescribed by OGS, which the campus will provide from State Contract.
 - c) At the time the campus furnished products are required for the work, if such products are no longer available on State Contract, the Contractor shall provide comparable products of the named manufacturer and, in such event, the Contract consideration shall be increased by an amount to be determined in accordance with the provisions of Section 4.02 of the Agreement.
4. Employ competent and suitable workers and equipment which meet the quality assurance recommendations and requirements of the named manufacturer and the specifications. Work involving installation of fire alarm system components shall be performed by a firm currently licensed by the NYS Department of State, Division of Licensing Services. Provide labor and equipment for receiving, unloading, handling, storing, protecting, and installing Campus-furnished products,

including making building services connections to campus networks, system adjustment and calibration, system testing and acceptance, programming related to software and graphics, training of campus staff, and other services specified.

5. Provide shop drawings, devices counts, field measurement and other submittal information specified. Examine the work areas and Contract documents to confirm suitability of products, number and type required and submit detailed list of products, devices and accessories for review. After approval of the list, resubmit it incorporating corrections, if any, requested by the Consultant. Campus will use the list to place the State Contract order. Allow up to 4 weeks for the Campus to finalize the order and 12 weeks for delivery of items in the order in the Time Progress Schedule.
6. Provide accessories, trim, finish, fasteners, and other material needed for a complete installation and indicated use and effect for the products provided by the Campus. Provide construction means, methods, equipment, etc., compatible with products provided by the Campus. If a dispute arises over concurrently selectable but incompatible products, the Consultant will determine which products shall be used.
7. Take delivery, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with the named manufacturer's written instructions.
 - a) Schedule delivery with the Campus to minimize long-term storage at Project site and to prevent overcrowding of construction spaces. 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.
 - b) Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected. Store products to allow for inspection and measurement of quantity or counting of units. Store products under cover in a weather-tight enclosure above ground, with ventilation adequate to prevent condensation. Comply with named manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage. Protect stored products from damage and liquids from freezing.
8. Warranties specified shall be in addition to, and run concurrent with, other warranties required by the State Contract.

01 66 00 Equipment Storage and Handling Requirements

1. Store equipment in accordance with the manufacturer's recommendations, including, but not limited to, providing anti-condensation heaters for electrical or other equipment, or other temporary measures to mitigate impact of environmental conditions in the storage location when such conditions vary from manufacturer recommendations. In addition to the requirements of the technical specifications and Sections 4.13 and 4.14 of the Agreement, for equipment that is stored, delivered and/or installed for work not yet accepted by the Fund, provide and maintain a preventive maintenance log (Log) that documents maintenance activities performed. (See Sections 4.13 and 4.14 of the Agreement, which requires the Contractor to perform these maintenance activities.)

2. In the Log, list equipment individually. For equipment listed, list the manufacturers' recommended maintenance activities; recommended maintenance tools, lubricants, parts and other items needed to perform maintenance; recommended frequency for performing maintenance activities; the qualifications of the workers performing the maintenance activity; anticipated/scheduled dates for performing the maintenance activity; the actual date the maintenance activity was performed; the name of the Contractor's employee who supervised performance and other information requested by the Consultant. See sample layout below:

preventive maintenance log									
Equipment	manufacturers' recommended maintenance activities	maintenance tools, lubricants, parts and other items	frequency of activity	qualifications of the workers	anticipated/ scheduled dates	actual date performed	Name of supervisor	Other	Comments
Item name	Lubricate lubrication points	ISO Grade 32 synthetic lubricant	after each 50 hours of use	Trained in accordance with manufacturer's guidelines	xx/xx/xxxx	xx/xx/xxxx	Mr. Contractor		May need to perform every 25 hours due to jobsite environmental conditions

- a. Prior to delivery of equipment to the site or storage location, submit the Log to the Consultant for approval.
- b. After delivery of equipment, upon periodic requests of the Consultant, submit the Log for inspection and review.
- c. Prior to acceptance of equipment, submit the Log showing all maintenance activities completed for the equipment proposed for acceptance.
- d. Provide timely notification and access for the Consultant and the Fund to witness any preventive maintenance activities listed in the Log.
- e. In addition to the above maintenance, where equipment or systems are used during construction for temporary purposes (such as heating, cooling, or other construction uses), provide additional maintenance, cleaning and other activities recommended by the manufacturer for the environmental conditions in which their equipment operates.

01 71 23 Field Engineering

1. In addition to Section 2.24 of the Agreement, employ an independent Land Surveyor (a person not in the regular employment of the Contractor or having any vested interest in the Contractor's business), licensed to practice in the State of New York, for the duration of the Work, to supervise and certify the accuracy of the survey work, including the following:
 - a. During the work, submit progress copies for use in Section 1C "Coordination Drawings" and when requested by the Consultant. Upon completion of the Work, submit a certificate signed and sealed by the Land Surveyor, stating that the elevations and locations of the Work are in conformance with the Contract Documents.
 - b. Maintain a complete and accurate log of control and survey work as it progresses. Utilize recognized engineering survey practices. Furnish all tools, equipment, and materials required to perform the work.
 - c. Verify locations of control points prior to starting work. Control datum for survey is indicated on the Drawings. Confirm permanent survey markers to be used as benchmarks for vertical control on the Site where indicated on the Drawings and referenced to

- established control points. Record locations, with horizontal and vertical data to within one one-hundredth of a foot, on Project Record Documents.
- d. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means.
2. Survey and record locations of site improvements including utility locations and invert elevations and
 - a. Power distribution and drainage structures: provide as built inverts at each end of each pipe or conduit.
 - b. Pipes and conduits ending without structures: provide as built inverts at each end of each pipe or conduit.
 - c. Structures: as built centerlines and frame elevation.
 3. Survey and record locations of building improvements within one week of erection, or as approved by the consultant, including:
 - a. In all multiple-story construction, the Contractor shall establish and maintain line marks at each floor level and grade marks four (4) feet above the finished floor at each floor level.
 - b. Grid, perimeter and axis for structures.
 - c. Building foundation perimeter, column locations, and floor, roof, pit and sump elevations.
 - i. Provide as built centerlines and perimeter of columns and piers.
 - ii. After the placement of concrete on each level, provide spot elevations on each level on each point of a 10-foot by 10-foot grid starting at the northeast corner of each floor. Show contours at one tenth of a foot where applicable.
 - iii. Perimeter of all floor opening locations relative to structural grid.
 - iv. After completion of the roofing membrane, provide spot elevations on each level on each point of a 10-foot by 10-foot grid starting at the northeast corner of the building. Show contours at one tenth of a foot where applicable.
 - d. Inverts of foundation and under drain piping at sumps and cleanouts.
 - e. For horizontal storm drainage piping suspended below decks, underside elevation spaced at not more than 10 feet on center.

01 71 36 Non-Destructive Building Examination

1. Prior to drilling, coring, cutting or demolishing existing or previously installed substrates, such as concrete and masonry, employ an experienced firm to investigate and locate items concealed in substrates that may be impacted by the work. Locate items such as reinforcing bars, tendons and other structural steel; conduits, piping, ducts and other concealed trade work; voids, substrate thickness and layers; and other concealed conditions within the substrates. Locate by scanning existing substrates with a radar system having a 2.7 GHz antenna (or equivalent system appropriate for the work). As concealed items are discovered and as needed to coordinate with new work, mark out location of such items on the substrate surfaces. Record and save all electronic data acquired during the scanning. If conditions are

discovered that differ substantially from those anticipated, provide all electronic data to the Consultant with the notice required by Section 2.12 of the Agreement.

01 73 00 10 Information required for Rebates, Grants, Awards and/or other Programs

1. In addition to Section 4.11 of the Agreement, for the work listed below, provide invoices, receipts and other documents from suppliers, subcontractors and others to whom the Contractor has allotted any portion of the work. Such invoices, receipts and other documents shall be originals as provided by the suppliers, subcontractors and/or others. In addition, all invoices, receipts and other documents shall have the complete and proper information required for the applicable rebate, grant, award or other program. To avoid withholding of progress payments, submit samples of invoices, receipts and other documents showing the required information and revise samples as directed by the Consultant.
2. Section 01 73 00 10 applies to the following work:

[Not applicable]

01 73 29 Cutting, Patching and Repairs

1. The Contractor shall do all cutting, fitting, and patching of its work that may be required to make its several parts come together properly and fitted to receive or be received by work of other Contractors as shown upon or reasonably implied from the Drawings and Specifications for the completed project.
2. Any cost caused by defective or ill-timed work or service disruption shall be borne by the party responsible therefor. Except as otherwise expressly provided in the Contract Documents, the Contractor shall not cut or alter the work of any other Contractor or existing work without the consent of the Consultant and the Fund.
3. Existing construction finishes, equipment, wiring, etc., that is to remain and which is damaged or defaced by reason of work done under this contract shall be restored by the Contractor to a condition satisfactory to the Fund, or replaced with new, at no additional cost.
4. Existing surfaces, materials, and work shall be prepared as necessary to receive the new installations. Such preparatory work shall be as required by the conditions, and in each case shall be subject to approval by the Consultant and the Fund.
5. Newly exposed work or surfaces which are presently concealed shall be made to match existing corresponding or adjoining new surfaces as directed, and the materials and methods to be employed shall be subject to approval by the Consultant and the Fund.
6. All new, altered, or restored work in the building and on the site shall match existing corresponding work in the material, construction finish, etc., unless otherwise specified or required by the drawings.

7. Holes, openings, gaps and voids created by removals shall be filled solid to match existing corresponding or adjoining new surfaces as directed, and the materials and methods to be employed shall be subject to approval by the Consultant and the Fund.
8. Do not cut and patch structural elements in a manner that would reduce their load carrying capacity or load-deflection ratio. Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.
9. If possible, retain the original installer or fabricator employed under this contract to repair, cut and patch exposed work or, if it is not possible to engage the original installer or fabricator, engage another recognized experienced and specialized firm acceptable to the Consultant.
10. Where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required to minimum disturbance of adjacent surface. Temporarily cover openings when not in use. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
11. Where removal of walls or partitions extends one finished area into another: Patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance; Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance. Where patching occurs in a smooth painted surface: extend final paint coat over entire unbroken surface containing the patch, after the patched area has received.
12. Where the extent of patching of portions of the Project is significant and the need for this significant patching is due to the Contractor's means and methods, skill and labor, equipment operations, sequence of trades, lack of temporary protective facilities and/or other actions during the performance of the work, then the significant patching shall be replaced with new work.
 - a. The Consultant will determine if patching must be replaced with new work using the following process.
 - i. Step 1: The Consultant will evaluate the risks associated with the Patching (such as water or water vapor infiltration into the work), the esthetic impact of visible Patching, the impact that Patching has on future maintenance, custodial or other campus operations and/or other objective criteria that it may deem reasonable during the evaluation of the Patching. Based on this evaluation, the Consultant may recommend moving on to Step 2.
 - ii. Step 2: The Consultant will count and measure the amount of Patching using the most reasonable unit of measurement applicable. The sum of these counts and measurements will be the total amount of Patching.
 1. The Consultant will determine the overall limits (Limits) of the portion of the Project with the Patching. The Limits will include all the Patching counted and measured above plus reasonably adjacent portions of the Project that may be without Patching.

2. The Consultant will measure the Limits using same unit of measurement used to measure the Patching. This quantity will define the extent of the Limits of the portion of the Project with the Patching.
 3. Using the figures calculated above, the Consultant determines the number of Patches and the percentage of Patching that exists within the Limits. The work within Limits shall be replaced with new work if:
 4. If the number count of Patches within the Limits exceeds 2 (two) per 100 (one hundred) square feet (or other appropriate unit of measurement), or
 5. If the percentage of Patching exceeds 15% (fifteen percent) within Limits.
- b. The Consultant will determine the reasonable extent and type of work required to replace the Patching and issued detailed drawings and instructions to the Contractor for its use in completing the corrective work.

01 74 00 Clean-Up

1. Periodic Cleaning: The Contractor shall at all times during the progress of the work keep the Site free from accumulation of waste matter or rubbish and shall confine its apparatus, materials and operations of its workers to limits prescribed by law or by the Contract Limit Lines, except as the latter may be extended with the approval of the Consultant and the Fund. Provide cleaning and waste disposal in accordance with the Fire Code of New York State and as required by NFPA 241 and as recommended in its Annex A, Explanatory Material. Cleaning of the structure(s), once enclosed, must be performed daily and removal of waste matter or rubbish must be performed at least once a week unless more frequent performance is required by NFPA 241 and recommended in its Annex A, Explanatory Material.
 - a. If open topped dumpsters are within 35 feet of any structure, empty and remove combustible contents from these dumpsters at the end of each shift.
 - b. Provide periodic pest and vermin control as required to deliver the completed building completely free of any infestation.
 - c. Waste Disposal: Do not dispose of, bury, or burn waste materials on-site. Grinding of concrete, asphalt or masonry for disposal shall not occur on-site. Do not wash waste materials down sewers or into waterways.
 - d. Prior to installation of ceilings, inspect all above ceiling areas and leave the completed above ceiling work and areas without the need of further cleaning of any kind and with all work in new condition and perfect order.
 - e. In addition to and in coordination with testing and cleaning specified in Divisions 2 through 48 inclusive, periodically flush and clean air and fluid new and existing systems in portions (sections) as the work is installed. Flushing and cleaning of existing systems is limited to portion modified in this work and portions shut down by this project (dead legs), where such portions were left without flow. Such dead legs shall be flushed and cleaned prior to restoration of use.

- i. Submit a flushing and cleaning plan to the Consultant for approval prior to beginning installation of a system.
 - ii. Unless otherwise approved by the Consultant, select portions of systems for cleaning in a manner that limits the maximum size of a portion cleaned in a single effort to an individual riser, to individual floor system and to not more than 1,000 linear feet in length of the installed portion of a riser or individual floor system, whichever is less.
 - iii. Where portions of systems are excluded from the portions being cleaned, provide all additional work required to functionally extend systems around the excluded and/or uncompleted portions and to fully separate the portions being cleaned from the excluded and/or uncompleted portions.
 - iv. Unless otherwise approved by the Consultant, fully separate fixtures, appliances, and equipment from the portions being cleaned by providing all additional work required to functionally extend systems around the excluded fixtures, appliances, and equipment and to fully separate the portions being cleaned from the excluded fixtures, appliances, and equipment.
 - v. Provide temporary means for providing and moving air and/or fluid at the rate required to flush and clean the portions of systems being cleaned unless use of permanent equipment is specifically approved by the consultant. If the permanent equipment is permitted to be used, provide a letter from the manufacturer's technical representative agreeing to such use, stating that its use shall not limit their warranty and excluding the time their system is used from the project specific warranty period. See 01 78 36, Warranties, for additional requirements.
 - vi. Capture, treat and legally dispose of air and fluid discharges, effluent and any materials cleaned from a systems or portions of a system. When approved by the consultant, the campus sanitary system may be used to convey discharges if the local treatment facility provides written confirmation to the Contractor that it will accept such discharges.
 - f. In addition, during the course of the work, the Contractor shall remove dust, debris, rubbish, and other materials scattered and dispersed from its work area into other spaces, sites, equipment or materials owned or controlled by others. Engage qualified firms and competent workers to restore the use or appearance of such spaces, sites, equipment or materials to their original condition and to the satisfaction their owner or controller. If such scattering or dispersal occurs, provide qualified workers during all periods of subsequent work to provide daily monitoring, containment, continuous cleaning, and other actions or modifications to work activities as required to mitigate future scattering or dispersal.
 - g. Provide and maintain sweeping compound to assist in daily cleanup as needed for the duration of the project. Provide, maintain and replace as necessary general use construction push brooms (soft bristle), construction push brooms (course bristle), heavy-duty, flat edge shovels and dustpans.
2. Final Clean Up: Upon completion of the work covered by the Contract, the Contractor shall leave the completed project ready for use without the need of further cleaning of any kind and with all work in new condition and perfect order. At least two weeks prior to the start of

Final Clean Up, submit a written implementation plan describing cleaning methods, staff, sequence and schedule of activities and other information requested by the Consultant. In addition, upon completion of all work, the Contractor shall remove from the vicinity of the work and from the property owned or occupied by the State of New York, the State University of New York or the Fund, all plant, buildings, rubbish, unused materials, concrete forms and other materials belonging to it or used under its direction during construction or impairing the use or appearance of the property and shall restore such areas affected by the work to their original condition, and, in the event of its failure to do so, the same shall be removed by the Fund at the expense of the Contractor, and it and its surety shall be liable therefor.

3. Plumbing:
 - a. Where potable water systems are altered by the work of this contract, flush altered portions by opening taps, faucets, drinking fountains, showers, emergency showers and other outlets for the flow rates and durations recommended by the American Water Works Association.
 - b. Prior to substantial completion of the work, when directed by the Consultant, route and flush all storm drain lines located in the staging area to the next catch basin, including those off site, and clean catch basins of all mud, silt and debris

01 74 16 Payment for Planting Maintenance

Not applicable

01 74 19 Construction Waste Management

1. In addition to the requirements of the above Sections 01 35 13, Conducting Work, and 01 74 00, Clean Up, provide and manage a project specific Construction Waste Management Plan (the Plan). The Plan shall have reasonable criteria for recycling and/or salvaging demolition and construction waste generated during the project. The plan shall demonstrate at good faith effort to meet the Campus' goal (the Goal) of recycling at least 50% of the construction and demolition waste generated by this contract.
 - a. Provide the proper labor, equipment and other means for collecting, separating, monitoring, storing, processing, transferring, tracking and transporting waste from the point of creation during the project to the point of its final disposition off the site of the Project.
 - b. The Plan shall outline the means and provisions for separating, recycling and salvaging demolition and construction waste generated during the project. Modify and resubmit the Plan periodically as needed to suit the field conditions of the site that may not have been anticipated in the original submission. The Plan will have a Waste Management Form (in Microsoft Excel) for written reporting on and accounting for all materials transferred from the project site.
 - c. Demolition and removal work on campus shall be limited to the minimum work required to create a debris stream that allows for reasonable handling and transport. Additional work on debris material, such as grinding, cutting or crushing, which may be desired by the Contractor to make the material ready for reuse off-site, shall be performed off-site.

- d. Prior to generating construction waste, submit the project specific Plan for approval by the Consultant and provide monthly written reports on the progress of the Plan.
- e. Upon approval of the Plan by the Consultant, it shall be implemented for the duration of the project.
- f. Any money received by the Contractor for materials recycled, sold or reused off site was considered when the Bid Proposal submitted to the Fund and may be retained by the Contractor. The Contractor is solely responsible for the security of any materials that may be recycled, sold or reused.

2. The Plan shall include, but not be limited to, the following components:

- a. A list of the waste materials from the Project that will be targeted for reuse, salvage, or recycling. The following materials, as applicable to the project, shall be accounted for (materials that will not be recycled shall be indicated as such):
 - i. Cardboard, paper, packaging.
 - ii. Acoustical Ceiling Tiles.
 - iii. Clean dimensional wood, pallet wood.
 - iv. Beverage containers.
 - v. Land clearing debris.
 - vi. Concrete.
 - vii. Stone.
 - viii. Concrete Masonry Units (CMU).
 - ix. Asphalt.
 - x. Metals, such as from banding, stud trim, ductwork, piping, rebar, roofing, windows, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
 - xi. Gypsum board.
 - xii. Carpet and pad.
 - xiii. Paint.
 - xiv. Asphalt roofing shingles if applicable for any existing building demolition.
 - xv. Rigid Foam.
 - xvi. Glass.
 - xvii. Plastics.
 - xviii. Woods.
 - xix. Other materials required by regulations and/or requested by the Consultant
- b. Provide a description of the proposed means of waste management, including collecting, sorting and transporting the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site for off-site sorting).
- c. If the waste management work is assigned in whole or part to a subcontractor, vendor or other entity, provide a description of who does what from the point of creation during the project to the point of its final disposition off the site of the Project.
- d. Provide an estimate of packaging materials generated and note whether suppliers will eliminate or take back packaging at time of delivery.
- e. Provide the name and address of the landfill(s) where trash will be disposed of and the applicable landfill tipping fee(s).

- f. Provide the name and address of the recycling facilities(s) where materials will be sent for recycling, how it will be recycled, and the applicable fee(s) paid or payment(s) received.
 - g. Include any additional information deemed relevant to describe the scope and intent of the Plan to the Consultant.
 - h. Provide documentation for materials or equipment to be removed from the site for sale or reuse, or turned over to the Campus, which are classified as recycled materials. Documentation shall include the description of the materials or equipment, weight or quantity of materials or equipment, and a receipt for the sale, a letter on Contractor's letterhead indicating the reuse or the Campus' signed receipt of materials or equipment, and the applicable fee(s) paid or payment(s) received.
3. In conjunction with payment applications, submit a monthly Waste Management report. This report shall include copies of waste receipts for the payment period and a completed Waste Management Form for the same payment period in PDF and Excel formats.
4. Calculations and supporting documentation to demonstrate end-of-project recycling rates meeting the requirements of the Construction Waste Management Plan. The process for recording and assembling documentation shall be as follows:
- a. Record and document the total weight (in tons) of all demolition and construction waste materials sent to the landfill. The Waste Management Reporting Forms shall be used as the basis for determining the total amount of waste landfilled for the project. The monthly reporting forms shall specify:
 - i. The number of dumpsters or other containers sent to the landfill for that month.
 - ii. The volume (in cubic yards) of each dumpster or container sent to the landfill for that month.
 - iii. The type of waste contained in each dumpster or container.
 - iv. The weight of the waste in each dumpster or container. If the weight of the waste is not directly measured for each dumpster or container, the following Solid Waste Conversion Factors shall be used to convert the volume of waste to weight:

Solid Weight Conversion Factors	
Mixed Waste	350 lbs/cubic yard
Wood	300 lbs/cubic yard
Cardboard	100 lbs/cubic yard
Gypsum Board	500 lbs/cubic yard
Rubble	1,400 lbs/cubic yard
Steel	1,000 lbs/cubic yard

- v. In addition, provide the name of the landfill that will be accepting the materials. Receipts or other equivalent proof of facility reception of materials is required.
 - b. Record and document the total weight (in tons) of all demolition and construction waste materials recycled or salvaged. Monthly Waste Management Reporting Forms shall be used as the basis for determining the total amount of waste recycled or salvaged for the project. The monthly reporting forms shall specify:
 - i. The number of dumpsters or other containers of recycled or salvaged materials for that month.
 - ii. The volume (in cubic yards) of each dumpster or container of recycled or salvaged materials for that month.
 - iii. The type of recycled or salvaged material contained in each dumpster or container.
 - iv. The weight of the recycled or salvaged material in each dumpster or container. If the weight of the material is not directly measured for each dumpster or container, the Solid Waste Conversion Factors listed for landfill waste above shall be used, where applicable, to convert the volume of material to weight. For materials not contained in the Solid Waste Conversion Factors above, propose a conversion factor for review by the Consultant.
 - v. In addition, provide the name of the receiving facilities/companies that will be purchasing or accepting the recycled or salvaged materials. Receipts or other proof of facility reception of materials is required.
 - vi. For materials separated for recycling off-site, establish a method for tracking the weight of the recycled material. The method shall be included in the Plan for the Consultant review and approval.
 - vii. Summarize and show current progress to date in meeting the contract specific Goal specified in paragraph 1 above.
 - c. Calculate the end-of-project recycling rate percentage by dividing the recycled and salvaged waste (in tons) by the total waste generated (recycled, salvaged, and landfilled waste – also in tons), and multiplying by 100.
 - d. For materials turned over to others for reuse, provide documentation on company letterhead indicating the material(s), the quantity (either by weight or units), the date and the intended reuse of the product.
- 5. During the work of the Project, provide all labor, containers, bins, dumpsters, and other equipment for the proper removal of all waste, non-returned surplus materials, and rubbish from the site in accordance with the Plan. Oversee and document the results of the Plan. Monitor the collecting, sorting, and depositing of all waste, non-returned surplus materials, and rubbish, in designated areas as per the Plan.
 - a. Locations for removal containers, bins and dumpsters shall be coordinated with the Consultant. Relocate containers, bins and dumpsters as needed to suit the field conditions during the work.

- b. Provide periodic on-site instruction to workers regarding the appropriate separation, handling and recycling, salvage, reuse and return methods to be used by all parties in appropriate stages of the Project.
 - c. Allow for and lay out a specific area(s) to facilitate separation of materials for potential recycling, salvage, reuse and return. Each potential material shall be collected and stored to avoid being mixed with other materials. Recycling and waste bin areas are to be kept neat and clean, and clearly marked. Relocate area(s) as needed to suit the field conditions during the work.
- 6. For all construction and demolition waste that leaves campus with a manifest, provide copies of manifests in the monthly reports. For each manifest that requires the Campus EPA ID number as the generator of the waste, submit a draft copy for the review by the campus, make any reasonable corrections that the campus requests, and allow one week for the campus to review and sign each completed manifest.

01 78 23 Operating Instructions and Manuals

1. General

- a. The operating instructions and manuals applicable to this contract must be substantially completed before the Project can be used for the purpose for which it was intended.
- b. The Contractor shall furnish three (3) complete printed sets and PDF/A files of operating instructions and manuals for all mechanical and electrical systems involved in the Contract. Operating instructions and manuals include definite and specific instructions on the proper operation and maintenance of the systems. The requirements of this section are in addition to the requirements of Section 01 33 23 Shop Drawings and Samples.
 - i. Furnish sets in phases based on the progress of the work. At no additional cost to the Fund, for products, equipment, systems and installations completed prior to the date of Substantial Completion, obtain and pay for warranty extensions that cover the additional time between the earlier date of their completion and the date of Substantial Completion.
 - ii. Provide PDF/A copies of all submittals (except physical samples) stored and labeled on four (4) sets of archival optical discs, Universal Serial Bus (USB) flash drives or other electronic data storage devices approved by the Consultant that include all documents and tracking logs in a indexed, text searchable, navigable format. PDFs created by scanning are not acceptable unless all images of text are properly and completely transformed into the electronic characters representing the text.
- c. Said instructions and manuals should set forth:
 - i. the manner of operation;

- ii. the necessary precautions and care to be followed:
 - iii. periodic prevention maintenance requirements; and
 - iv. a complete set of spare parts lists, catalogs, service manuals and manufacturing data on said systems.
 - d. Engage a manufacturer authorized service representative(s) to provide and prepare information for each system, subsystem, and piece of equipment.
 - e. Submit draft copies of operating instructions and manuals to the Consultant for review and comment in sequence with the commissioning process submittals for the project. If there is no commissioning process specified for this project, submit the draft copies at least six weeks prior to the date the final copies are due.
 - f. Provide final copies a minimum of six (6) weeks prior to the date of Substantial Completion or three (3) weeks prior to scheduled training sessions, whichever is sooner.
 - g. Final copies shall be complete except for copies of warranties and other items approved by the Consultant for turnover on the date of Substantial Completion.
 - h. For the purposes of complying with Article IV of the Agreement, the value of the operating instructions and manuals is initially deemed to be **\$ 10,000**.
2. Deliverables for each complete set include:
- a. Use 8-1/2 x 11-inch text pages bound in capacity expansion binders with durable plastic covers and sides identified with printed titles "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder. 11 x 17 paper may be used if each page is folded three times to fit the 8-1/2 x 11 format.
 - b. Organize into sets of manageable size.
 - i. Organize the manual into separate sections by CSI number based on the table of contents of the project manual, for each system and subsystem, and a separate section for each piece of equipment not part of a system. Arrange content within sections alphabetically.
 - ii. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
 - c. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the binder, and cross-referenced to Specification Section number in Project Manual.
 - d. When multiple binders are required, use the same type of binder for each and prepare a printed Table of Contents for each binder, with each product or system description in the binder identified. Also include comprehensive table of contents for all binders in each binder of the set.

- e. Internally subdivide the binder contents with permanent page dividers, logically organized as described below, with tab titles clearly printed under reinforced laminated plastic tabs:

Part 1: Directory, listing names, addresses, email and telephone numbers of Consultant, Contractor, subcontractors, and suppliers.

Part 2: Operation and maintenance instructions, arranged by subdivided by specification section, then by system, then by subsystem, then by equipment. Use designations for systems, subsystems and equipment indicated on Contract Documents. In each subdivision, identify the following:

1. Description of system, subsystem, or equipment, as applicable, including:
 - a. Product name and model number. Use designations for products indicated on Contract Documents.
 - b. Manufacturer's name.
 - c. Equipment identification with serial number of each component.
 - d. Equipment function.
 - e. Operating characteristics.
 - f. Limiting conditions.
 - g. Performance curves.
 - h. Engineering data and tests.
 - i. Complete nomenclature and number of replacement parts.
2. In systems and subsystems, a list of equipment, components and parts.
3. Operating instructions and procedures, including:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Instructions on stopping.
 - f. Normal shutdown instructions.
 - g. Seasonal and weekend operating instructions.
 - h. Required sequences for electric or electronic systems.
 - i. Special operating instructions and procedures.
4. Operating standards.
5. Operating logs.
6. Wiring diagrams, as installed.
7. Control diagrams, as installed. Describe the sequence of operation, and diagram controls as installed.
8. Piped system diagrams, as installed and identify color-coding as installed.
9. Precautions against improper use.
10. License requirements, if any, including inspection and renewal dates.

11. Maintenance instructions for operating parts and components. Include manufacturer's written recommendations and the following:
 - a. 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.
 - b. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - c. Maintenance and Service Record: Include manufacturers' forms for recording maintenance and inspection.
 - d. Lists of materials, sources of materials and related services.
 - e. Standard maintenance and repair instructions and bulletins.
 - f. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - g. Test and inspection instructions.
 - h. Troubleshooting guide.
 - i. Precautions against improper maintenance.
 - j. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - k. Aligning, adjusting, and checking instructions.
 - l. Demonstration and training video recording, if specified.
 - m. Identification and nomenclature of parts and components.
 - n. List of items recommended to be stocked as spare parts with parts identified and cross-referenced to manufacturers' maintenance documentation.
 - o. Prepare supplementary text if manufacturers' standard printed data are not available, applicable or where project specific information is necessary for proper operation and maintenance of equipment or systems.
12. Maintenance instructions for finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.
 - a. Types of cleaning agents to be used and methods of cleaning.
 - b. List of cleaning agents and methods of cleaning detrimental to product.

Part 3: Project documents and certificates, including the following:

1. Approved shop drawings (reduced size copies printed on 11 x 17 paper) and product data.
2. Air and water balance reports.
3. Photocopies of original warranties (originals submitted per Section 01 78 36, Warranties.)

01 78 36 Warranties

1. In addition to the requirements of Section 2.25 of the Agreement, provide warranties for products, equipment, systems and installations required by other technical sections of Contract Documents for duration indicated. Warranties shall be individually listed in the project specific submittal log required by 01 33 23, Shop Drawings and Samples.
 - a. All warranties required by Contract Documents shall commence on date / time of Substantial Completion shown on Page A-1 of the Agreement.
 - i. At no additional cost to the Fund, for products, equipment, systems and installations completed prior to the date of Substantial Completion, obtain and pay for warranty extensions that cover the additional time between the earlier date of their completion and the date of Substantial Completion.
 - b. Provide a list of all Contractor provided warranties that are specified in Divisions 1 through 48, inclusive, and list who will inspect the work covered by the warranty (if applicable), when it will be done, who witnessed it and when, results (pass/fail), follow up action, comments and other information requested by the Consultant.
 - i. Unless otherwise approved by the Fund, all inspections must be witnessed and signed off by the Consultant prior to acceptance of Contractor provided warranties that are specified in Divisions 1 through 48, inclusive.
 - ii. The Consultant will reject a Warranty issued prior to or without the manufacturer's field inspection of the work, if required in Divisions 1 through 48, inclusive.
 - c. Unless otherwise approved by the Consultant and if required in Divisions 1 through 48, inclusive, the scheduled value of a Contractor provided warranty in the Contract Breakdown required by Section 4.08 of the Agreement shall be 5% of the amount estimated for the work being warranted.
 - d. Furnish and organize original warranties in a separate binder with a durable plastic cover. Organize the binder into separate sections by CSI number based on the table of contents of the project manual. Internally subdivide the binder contents with permanent page dividers, logically organized as described below, with tab titles clearly printed under reinforced laminated plastic tabs. Provide a printed Table of Contents.
 - i. Warranties shall be in the form required by the applicable technical sections of Contract Documents. Include procedures to follow and required notifications for warranty claims.
 - ii. Warranty Certification: Written certification from the warrantor that the warranty is in effect and non-retractable due to any of the specified conditions. Warranties submitted without warranty certification will not be accepted.

- iii. Deliver the binder to the Consultant with the written notice of Substantial Completion required by Section 2.23(2) of the Agreement.
 - e. For uncompleted work delayed beyond date of Substantial Completion, provide updated binder submittal within 10 days after acceptance, indicating date of acceptance as start of warranty period for any work delayed beyond date of Substantial Completion.
 - 2. Applications for payment after the date of Substantial Completion may not be approved until the warranty certification and warranty documents are delivered to the Consultant.
- 01 78 39 Project Record Documents**
- 1. In addition to Section 2.24 of the Agreement, provide the Records Information required by Fire Code part 901.6.3.1 and the Operating Adjustments and Instructions required by Mechanical Code part 1004.7.
- 01 79 00 Training of Campus Personnel**
- 1. Training of campus personnel in the use of the work of this Project must be substantially completed before the Project can be used for the purpose for which it was intended. The information required by Section 01 78 23 Operating Instructions and Manuals is required for training to occur and be completed.
 - 2. The Contractor shall be responsible for training coordination and scheduling and ultimately for ensuring that training is completed. A draft schedule of all training shall be submitted three months prior to any training and finalized one month prior to the actual training. In addition to these general requirements, additional specific training requirements of campus personnel by the Contractor are specified in other the applicable specifications. The Campus will designate the personnel who will be trained, and some personnel may not be direct employees of the Campus.
 - 3. The Contractor shall provide individual training sessions for each piece of equipment furnished under this Contract. The Contractor shall provide factory authorized representatives for each training session. Training shall include operation and maintenance, preventative maintenance and troubleshooting. Operation and maintenance manuals shall be furnished to the campus personnel three weeks prior to the associated training session.
 - a. The Contractor shall schedule all training sessions. A minimum of 48-hour notice is required for scheduling. Training for each piece of equipment shall be provided in two separate sessions for each shift, one week apart. Each training session shall be no less than four hours in duration (total of 8 hours training per shift for each piece of equipment).
 - b. The Contractor shall provide an additional four-hour refresher training session. The refresher training shall be provided three months after the respective equipment has been accepted.
 - 4. The Consultant shall review and approve an outline of the content and adequacy of the training of Campus personnel for the equipment. The outline will be reviewed for content to ensure adequate coverage of the material. The Contractor will be required to revise the outline and training session based on comments by the Consultant. After approval of the training outline,

submit draft PowerPoints (or equivalent) for the training. These project-specific PowerPoint presentations will integrate photos of as-built conditions, images of project specific diagrams and project specific visual cues for applicable systems. The Campus shall be responsible for providing the appropriate personnel at each session. Sessions once held may not be repeated, unless deficient or improperly taped, without additional cost to the Contractor. Contractor shall assign a person other than the training session instructor to operate the videotaping equipment. Tape of the first session shall be reviewed immediately with the Consultant to confirm that the taping method provides suitable, clear documentation of the training session, and shall become the sample against which all future tapes are judged. Tapes with substantial deficiencies, as compared to that sample, shall be redone in a repeated session of training. Tapes shall be copied for insertion into each manual and shall be indexed and titled as to their contents with type written labels. The Campus personnel in attendance shall be documented with a sign in sheet for each session, to be included in the O & M Manuals. Attendance sign-in shall constitute their certification that full training in the subjects was covered. Where training occurs off campus, provide confirmation vouchers showing attendance paid in full.

5. Refer to technical specification sections for additional training.

****End of 01 00 00 General Requirements****

Status Key: **NYS** - Not Yet Submitted **SCH** Scheduled for submission **SUB** - Submitted & Received **APP**-Approved No Exceptions Taken **MCN**- Make Corrections Noted **RAR**- Revise & Resubmit **REJ**- Rejected **SSI**- Submit Specified Item **RFR** - Resubmit for Record Only
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PROJECT No. 291036-01

Contractor Job #:

Project Name: Renovations to Relocate Admissions for Rehab of Administration Bldg. - Phase 1A

Revised By:

DATE:

Contractor ID No.	CSI Section No.	Paragraph No.	Revision / Version No. (If app.)	Description / subject of Submittal	Submittal Action Category	Submittal Type	Status	Firm preparing Submittal	Firm Reviewing Submittal	Proposed Submission Date	Actual Submission Date	Requested Approval Date	Actual Approval Date	Date Submission Returned	Purchasing Date	Fabrication Date	Installation Date	1st Delivery Inspected Date	Pre-Instal. Conf. Date	Mock up Inspected Date	Other (desc.)	Comments
1	00.52.00	Section 2.18		List of Subcontractors	Action	DAT	NYS															Due prior to work and no later than 30 days after NTP
2	00.52.00	Section 2.12		Site Conditions	Informational	OTH	NYS															if needed
3	00.52.00	A-Sec 2.04		Relocation Plans	Informational	OTH	NYS															
4	00.52.00	A-Sec 3.04		Monthly Reports	Informational	REP	NYS															
5	00.52.00	A-Sec 3.08		Schedule of Values	Action	OTH	NYS															
6	00.52.00	A-Sec 6.07-1		MBE/WBE Monthly Utilization Reports	Informational	REP	NYS															
7	00.52.00	A-Sec 6.07-1		Superintendent Submission	Action	OTH	NYS															
8	01.16.13			Utility Shutdown Schedule	Action	OTH	NYS															monthly
9	01.26.13			Request for Information (RFI) log	Action	OTH	NYS															if needed
10	01.29.00.10			Water readings	Informational	DAT	NYS															if needed
11	01.31.19			Bi-weekly reports	Informational	REP	NYS															if needed
12	01.31.19.10			Existing Conditions reports	Informational	REP	NYS															if needed
13	01.31.19.10			Existing Conditions report	Informational	REP	NYS															if needed
14	01.32.13			Off campus street usage	Informational	REP	NYS															if needed
15	01.32.13			Off campus street usage	Informational	OTH	NYS															if needed
16	01.32.16			Project Schedule and Submittal Schedule	Action	OTH	NYS															Due prior to work
17	01.32.33			Project Photographs	Informational	OTH	NYS															if needed
18	01.33.23			Submittal management website	Action	OTH	NYS															if needed
19	01.33.23			Archival submittals	Informational	OTH	NYS															if needed
20	01.33.23.10			Coordination Drawings	Action	SD	NYS															Due prior to work
21	01.35.13			emergency action plan	Informational	DAT	NYS															Due before waste leaves site
22	01.35.13			daily reports	Informational	REP	NYS															if needed
23	01.35.13			SWPP modifications	Informational	DAT	NYS															if needed
24	01.35.13			SWPP inspection logs	Informational	DAT	NYS															if needed
25	01.35.13			Diesel vehicle forms	Informational	DAT	NYS															if needed
26	01.35.13			Temporary Traffic Control of Plans	Action	SD	NYS															if needed
27	01.35.13			ID Badge Format	Informational	OTH	NYS															if needed
28	01.35.13			Safety Procedures Manual	Informational	REP	NYS															if needed
29	01.35.23			Safety Procedures Manual	Informational	DAT	NYS															if needed
30	01.35.23			Names of "competent" persons	Informational	DAT	NYS															if needed
31	01.35.23			Pre-demolition utility plan	Informational	SD	NYS															if needed
32	01.35.23			Temporary Egress / Barrier Plan	Informational	OTH	NYS															if needed
33	01.35.23.10			MSDS sheets	Informational	DAT	NYS															if needed
34	01.41.13			Special Inspection submittals	Action	TEST	NYS															if needed
35	01.41.13			Fire Alarm System License	Informational	OTH	NYS															if needed
36	01.41.13			Master Electrical Inspector	Informational	OTH	NYS															if needed
37	01.41.13			Special Inspection logs	Informational	REP	NYS															if needed
38	01.41.13			Name of Commissioning Agent	Action	REP	NYS															if needed
39	01.41.13			Name of Commissioning Agent	Action	REP	NYS															if needed
40	01.51.16			Fire watch plan	Action	REP	NYS															if needed
41	01.51.23			Cooling tower maintenance plan	Action	REP	NYS															if needed
42	01.52.13			Field Office equipment information	Action	REP	NYS															if needed
43	01.54.13			Plan for Use of Elevator(s) for Construction	Action	REP	NYS															if needed
44	01.55.29			Lifting procedure safety plan	Informational	DAT	NYS															if needed
45	01.60.00.20			Petroleum Spill Compliance Certification	Informational	OTH	NYS															if needed
46	01.64.00			Vermiculate origins certification	Informational	OTH	NYS															if needed
47	01.66.00			Campus-Furnished Products submittals	Action	SD	NYS															if needed
48	01.71.23			Preventive maintenance log	Action	REP	NYS															if needed
49	01.73.00.10			Field Engineering surveys	Informational	DAT	NYS															if needed
50	01.73.00.10			Information for Rebates/Grants/Awards/Programs	Informational	DAT	NYS															if needed
51	01.74.00			Fluid system flushing and Clean Up plan	Informational	DAT	NYS															if needed
52	01.74.00			Final Cleanup Plan	Informational	DAT	NYS															if needed
53	01.74.16			Planning Maintenance logs	Informational	DAT	NYS															if needed
54	01.74.19			Construction Waste Management Plan	Action	OTH	NYS															if needed
55	01.74.19			Construction Waste manifest/monthly report	Action	OTH	NYS															if needed
56	01.78.23			Operating Instructions and Manuals	Action	OTH	NYS															if needed
57	01.79.00			Warranties	Action	OTH	NYS															if needed
58	01.79.00			Schedule of Campus training	Action	OTH	NYS															if needed
59	02.41.19			Outlines of actual training	Action	OTH	NYS															if needed
60	02.41.19			Selective Demolition	Action	OTH	NYS															if needed
61	02.83.13			Asbestos Abatement	Action	OTH	NYS															if needed
62	02.94.00			Lead Remediation	Action	OTH	NYS															if needed

PROJECT No. 291036-01

Contractor Job #:

Project Name: Renovations to Relocate Admissions for Reliab of Administration Bldg –Phase 1A

Prepared By:

DATE:

Status Key: **NYS** - Not Yet Submitted **SCH** Scheduled for submission **SUB** - Submitted & Received **APP**-Approved No Exceptions Taken **MCN**- Make Corrections Noted **R&R**- Revise & Resubmit **REJ**- Rejected **SSI**- Submit Specified Item **RFR** - Resubmit for Record Only
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Contractor ID No.	CSI Section No.	Paragraph No.	Revision / Version No. (If appl.)	Description / Subject of Submittal	Submittal Category	Submittal Type	Status	Firm Preparing Submittal	Firm Reviewing Submittal	Proposed Submission Date	Actual Submission Date	Requested Approval Date	Date Submission Returned	Purchasing Date	Fabrication Date	Installation Date	1st Delivery Inspected Date	Pre-Instal. Conf. Date	Mock up Inspected Date	Other (desc.)	Comments
63				Cash-in-Place Concrete	Action		NYS														
64	033000			Cement Levelling Compound	Action		NYS														
65	042000			Unit Masonry	Action		NYS														
66	051000			Structural Steel	Action		NYS														
67	055000			Miscellaneous Metals	Action		NYS														
68	061000			Rough Carpentry	Action		NYS														
69	062000			Finish Carpentry	Action		NYS														
70	064023			Interior Architectural Woodwork	Action		NYS														
71	075100			Sprayed Fire-Resistant Materials	Action		NYS														
72	075100			Interior Architectural Woodwork	Action		NYS														
73	075200			Joint Sealing / Finishing	Action		NYS														
74	081113			Hollow Metal Doors and Frames	Action		NYS														
75	091416			Wood Doors	Action		NYS														
76	093100			Vault Access Doors	Action		NYS														
77	093113			Access Doors	Action		NYS														
78	094123			Fire Rated Steel Framed Entrances	Action		NYS														
79	097100			Door Hardware	Action		NYS														
80	098000			Glass and Glazing	Action		NYS														
81	099000			Shutters and Vents	Action		NYS														
82	103000			Typical Board Assemblies	Action		NYS														
83	103000			Typical Board Assemblies	Action		NYS														
84	095113			Acoustic Panel Ceilings	Action		NYS														
85	095133			Direct Attached Metal Panel Ceiling	Action		NYS														
86	096500			Resilient Tile Flooring	Action		NYS														
87	096501			Rubber Base	Action		NYS														
88	096813			Carpet Tile	Action		NYS														
89	097726			Trackable Wall Covering	Action		NYS														
90	098129			Sprayed Acoustic Ceiling Coating	Action		NYS														
91	098410			Wall Mounted Acoustic Panels	Action		NYS														
92	101100			Visual Display Surfaces	Action		NYS														
93	101100			Visual Display Surfaces	Action		NYS														
94	101400			Signage	Action		NYS														
95	102813			Toilet Accessories	Action		NYS														
96	104416			Fire Extinguishers and Cabinets	Action		NYS														
97	115213.5			Tab-Tension Front Projection Screen	Action		NYS														
98	122413			Window Shades	Action		NYS														
99	210510			General Provisions for the Fire Protection System	Action		NYS														
100	210529			Pipe Hangers and Supports	Action		NYS														
101	210530			Sprinkler System	Action		NYS														
102	210530			General Provisions for the Fire Protection System	Action		NYS														
103	220500			Plumbing General Conditions	Action		NYS														
104	220517			Stewies and Sleeve Seals for Plumbing Piping	Action		NYS														
105	220518			Escutcheons for Plumbing Piping	Action		NYS														
106	220523.12			Ball Valves for Plumbing Piping	Action		NYS														
107	220523.14			Check Valves for Plumbing Piping	Action		NYS														
108	220523.15			Gate Valves for Plumbing Piping	Action		NYS														
109	220529			Hangers and Supports for Plumbing Piping and El	Action		NYS														
110	220548.13			Vibration Controls for Plumbing Piping and El	Action		NYS														
111	220719			Plumbing Piping Insulation	Action		NYS														
112	220719			Plumbing Piping Insulation	Action		NYS														
113	221119			Domestic Water Piping Specialties	Action		NYS														
114	221316			Sanitary Waste and Vent Piping	Action		NYS														
115	221319			Sanitary Waste and Vent Piping Specialties	Action		NYS														
116	221413			Facility Storm Drainage Piping	Action		NYS														
117	221423			Storm Drainage Piping Accessories	Action		NYS														
118	224213.13			Commercial Water Closets	Action		NYS														
119	224216.13			Commercial Lavatories	Action		NYS														
120	224216.16			Commercial Sinks	Action		NYS														
121	224713			Drinking Fountains	Action		NYS														

PROJECT No. 291036-01

Contractor Job #:

Project Name: Renovations to Relocate Admissions for Reliab of Administration Bldg –Phase 1A

Prepared By:

DATE:

Status Key: **NYS** - Not Yet Submitted **SCH** Scheduled for submission **SUB** - Submitted & Received **APP**-Approved No Exceptions Taken **MCN**- Make Corrections Noted **R&R**- Revise & Resubmit **REJ**- Rejected **SSI**- Submit Specified Item **RFR** - Resubmit for Record Only
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Contractor 2 2	CSI Section No.	Paragraph No.	Revision / Version No. (If appl.)	Description / subject of Submittal	Submittal Category	Submittal Type	Status	Firm preparing Submittal	Firm Reviewing Submittal	Proposed Submission Date	Actual Submission Date	Requested Approval Date	Date Submission Returned	Purchasing Date	Fabrication Date	Installation Date	1st Delivery Inspected Date	Pre-Instal. Conf. Date	Mock up Inspected Date	Other (desc.)	Comments
127	230511			General Provisions for HVAC Work	Action		NYS														
128	230513			Common Motor Requirements for HVAC Equipment	Action		NYS														
129	230517			Sleeves and Sleeve Seals for HVAC Piping	Action		NYS														
130	230518			Escutcheons for HVAC Piping	Action		NYS														
131	230519			Meets and Gages for HVAC Systems	Action		NYS														
132	230523.11			Global Valves for HVAC Piping	Action		NYS														
133	230523.12			Ball Valves for HVAC Piping	Action		NYS														
134	230523.14			Check Valves for HVAC Piping	Action		NYS														
135	230523.15			Gate Valves for HVAC Piping	Action		NYS														
136	230523.16			Variable Frequency Drives for HVAC	Action		NYS														
137	230548.13			Variable Frequency Drives for HVAC	Action		NYS														
138	230553			Identification for HVAC Piping and Equipment	Action		NYS														
139	230593			Testing, Adjusting and Balancing for HVAC	Action		NYS														
140	230713			Duct Insulation	Action		NYS														
141	230719			HVAC Piping Insulation	Action		NYS														
142	230923			Direct Digital Control (DDC) System for HVAC	Action		NYS														
143	230923.11			Control Valves	Action		NYS														
144	230923.27			Temperature Instruments	Action		NYS														
145	230933.11			Sequence of Operations for HVAC DDC	Action		NYS														
146	231112			Access Panels for HVAC Piping	Action		NYS														
147	231113.2			Meat Ducts	Action		NYS														
148	231300			Air Duct Accessories	Action		NYS														
149	231713.13			Air Diffusers	Action		NYS														
150	231713.23			Air Registers and Grilles	Action		NYS														
151	231720			Air-to-air Energy Recovery Equipment	Action		NYS														
152	232129			Fan Coil Units	Action		NYS														
153	260511			General Provisions for Electrical Work	Action		NYS														
154	260519			Low-Voltage Electrical Power Conductors and	Action		NYS														
155	260526			Grounding and Bonding for Electrical System	Action		NYS														
156	260528			Conduit and Raceways for Electrical Systems	Action		NYS														
157	260533			Conduit and Raceways for Electrical Systems	Action		NYS														
158	260544			Sleeves and Sleeve Seals for Electrical Raceways	Action		NYS														
159	260553			Identification for Electrical Systems	Action		NYS														
160	260923			Lighting Control Devices	Action		NYS														
161	262416			Panelboards	Action		NYS														
162	262726			Wiring Devices	Action		NYS														
163	262726.2			Floor and Wall Boxes	Action		NYS														
164	262813			Fuses	Action		NYS														
165	262816			Enclosed Switches and Circuit Breakers	Action		NYS														
166	262816			Lighting Fixtures	Action		NYS														
167	265100.01			Lighting Fixture Schedule	Action		NYS														
168	265100.02			Lighting Fixture Cut Sheets	Action		NYS														
169	265219			Exit Lighting	Action		NYS														
170	265311			Digital, Addressable Fire-Alarm System	Action		NYS														

Contractor: Firm ID:

Location(s):

Contractor Fire Prevention Program Superintendent:

Campus Fire Prevention Program Manager:

Code Enforcement Official (CEO):

#	<i>All bracketed references are from NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations, unless otherwise noted. This is not a complete list of requirements.</i>	YES	NO	N/A
1	Temporary Separation Walls {8.6.2}: Is there adequate separation between the work area and the rest of the building (One hour separation walls and 45 min opening protectives are often required by 8.6.2)?	☐	☐	☐
2	Temporary Enclosures {4.3.1}: Are all panels, tarps, plastic sheeting, etc. flame retardant?	☐	☐	☐
3	Impairments {IFC Section 1003}: ☐ Have paths of egress from occupied areas been maintained? {IFC Section 1003}: ☐ If fire alarm/detection systems in occupied areas have been temporarily impaired. Has the Campus Fire Prevention Program Manager approved the impairments/restrictions? {IFC Section 901}	☐	☐	☐
4	Fire Extinguishers {4.3.4}: ☐ Are appropriate fire extinguishers readily available, with a maximum travel distance of 50 feet? ☐ Have fire extinguishers been provided within temporary enclosures?	☐	☐	☐
5	Internal Combustion Devices {4.4}: ☐ Are all internal combustion devices, where required, exhausted outside, with a least 9 inches between exhaust and combustible materials? ☐ Is refueling only done on cool engines?	☐	☐	☐
6	Temporary Heating {5.2}: Is temporary heating equipment listed and being used according to the manufacturer's requirements?	☐	☐	☐
7	Hot Work Programs {5.1}: ☐ Is there a current permit for ongoing operations? ☐ Are all precautions required by the permit in place? ☐ Is there a dedicated fire watch? ☐ Does the fire watch extend after the completion for work (e.g., usually minimum of 30 min. in general or 2 hrs for roofs)?	☐	☐	☐
8	Waste {5.4}: Are accumulations of waste materials, dust, and debris removed at the end of each shift (or more frequently as needed)? ☐ Are materials subject to spontaneous ignition (e.g., oily rags) stored in listed disposal containers?	☐	☐	☐
9	Trash Chutes {5.4}: Are trash chutes non-combustible, or provided with sprinkler protection?	☐	☐	☐
10	Flammable/Combustible Liquids {5.5}: Are flammable/combustible liquids in proper containers and is there less than a total of 60 gallons inside and within 50 feet of the structure?	☐	☐	☐
11	Compressed Gases { IFC Chapter 53}: Are compressed gases properly stored and being used?	☐	☐	☐

#	<i>All bracketed references are from NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations, unless otherwise noted. This is not a completed list of requirements.</i>	YES	NO	N/A
12	Electrical {6.1}: ☐ Are extension cords rated and free from damage? ☐ Do all branch circuits originate in approved power outlets or panel boards with over-current protection? ☐ Are all circuits grounded?	☐	☐	☐
13	Lighting {6.1.3}: ☐ Do all temporary lights have guards? ☐ Are lights only suspended by their cords when designated to be so suspended? ☐ Are they fastened securely, if necessary, to prevent ignition of combustible materials?	☐	☐	☐
14	Fire Safety Plan {7.1}: Has a fire safety plan been established and has a Fire Prevention Program Superintendent been designated?	☐	☐	☐
15	Fire Alarms {7.4}: ☐ Is there a readily available pull box for fire alarms? ☐ If a telephone is used, are instructions clearly posted?	☐	☐	☐
16	Command Post/Evac Area {7.5} ☐ Is there a designated command post provided with plans, emergency info., keys, communication, and other equipment as needed? ☐ Is there a clear post-evacuation muster location?	☐	☐	☐
17	Fire Access {7.5}: ☐ Are pre-approved fire department access routes being maintained? ☐ Is there clear access to hydrants, standpipe and fire department connections?	☐	☐	☐
18	Standpipes {7.6, 8.7.4}: Are standpipes ready for use, and remain within one floor of the top level during construction/demolition?	☐	☐	☐
19	Egress {7.8}: Is the means of egress acceptable (e.g. properly marked, clear, safe, lighted)?	☐	☐	☐
20	Sprinkler {8.7.3}: ☐ Is the sprinkler in place as soon as practicable following construction? ☐ Are sprinkler valves checked at the end of each shift?	☐	☐	☐
21	Fire Cutoffs {8.6.1}: ☐ Are fire walls and exit stairwells, where required for the completed building, given construction priority for installation? ☐ Are fire doors installed as soon as practicable?	☐	☐	☐
22	Stairs {7.5.6}: Is a stairwell provided for the building? ☐ Is the stairwell extended upward as each floor is installed in new construction and maintained for each floor still remaining in demolition? ☐ Is it lighted? ☐ Is it enclosed when the building exterior walls are in place? ☐ Is signage provided indicating floor level, stair designation, and exit path directions? ☐ Are extinguishers provided at each floor?	☐	☐	☐
23	Impairments to fire protection systems or fire alarm, detection or communication systems {7.2.4.6}: ☐ Are temporary impairments of all fire protection devices and alarm/detection systems immediately removed upon completion of work in the area and at the end of each shift? ☐ Is there an impairment coordinator?	☐	☐	☐
Number of Violations:				

Notes:

Completed Report Submission Information:

Distribution: Contractor, Campus, CEO, Project File

Submitted to:

Submission Date:

Reviewer:

Date of Review:

Statement of Special Inspections

SUCF Project No.: 291036-01

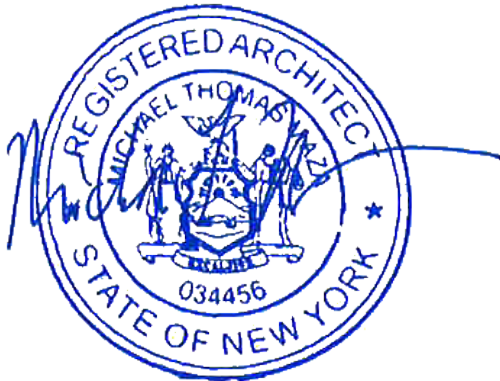
Project Title: Renovations to Relocate Admissions for Rehab of Administration Bldg – Phase 1A

Registered Design Professionals in Responsible Charge:

	(Name)	(Address)
Architect:	Michael Maza	115 Fifth Avenue, 3rd Floor, New York, NY 10003
Structural Engineer:	Richard Zottola	40 Wall Street, Floor 23, New York, NY 10005
Mechanical Engineer:	Jay Agarwal	164 Brighton Road, Clifton, NJ 07012

As the Registered Design Professional(s) in Responsible Charge for this project, I/we certify this Statement of Special Inspections includes a complete list of materials and work that require special inspection and testing and the minimum qualifications of the Special Inspectors / testing agencies required to be considered for conducting the inspections and testing. This represents the complete extent of special inspections and testing required during the construction of this project and complies with the NYS 2020 Uniform Fire Prevention and Building Code.

In addition to the inspections required in 2020 BCNYS sections 105 and 1705, I/we shall perform structural observations as necessary per 1704.6.



(Affix professional seal)

Architect

Michael Maza 06/12/2023

(Print name / date)

Michael J. Maza
(Signature)



(Affix professional seal)

Structural Engineer

Richard Zottola 06/12/2023

(Print name / date)

Richard Zottola
(Signature)



(Affix professional seal)

Mechanical Engineer

Jay Agarwal 06/12/2023

(Print name / date)

J. Agarwal
(Signature)

-> **Nature of Occupancy:** A-3, B

Risk Category III

-> **Seismic-Force-Resisting Systems:**

The Seismic Design Category (SDC) is B

There ☐ are ☒ are not, seismic-force-resisting systems in this project.

There ☐ are ☒ are not, designated seismic systems.

Additional Items for Seismic Design Categories B, C, D or F (1705.12.8):

☐ Isolator units and energy dissipation devices.

Additional Items for Seismic Design Categories C, D, E or F:

☐ HVAC ducts designed to carry hazardous materials. (1705.12.6)

☐ Piping / mechanical units designed to carry hazardous materials. (175.12.6)

☐ Electrical equipment used for emergency or standby power systems. (1705.12.6)

☐ Vibration isolation systems requiring ¼" max between equipment support frames and restraint. (1705.12.6)

☐ Automatic fire sprinkler installed: mechanical and electrical equipment, including ductwork, piping systems and their structural supports. (1705.12.6)

☐ Structural wood (1705.12.2)

☐ Cold-formed light-frame construction (1705.12.3)

☐ Designated seismic systems (1705.12.4)

Additional Items for Seismic Design Categories D, E or F:

☐ Exterior cladding, interior or exterior non-bearing walls >30 ft above grade or walking surfaces. (1705.12.5)

☐ Exterior cladding, interior or exterior non-bearing walls weighing >5 psf. (1705.12.5)

☐ Interior non-bearing walls weighing >15 psf. (1705.12.5)

☐ Access floors. (1705.12.5)

☐ Steel storage racks taller than 8 feet. (1705.12.7)

☐ Cold-formed steel special bolted moment frames. (1705.12.9)

Additional Items for Seismic Design Categories D, E or F:

☐ Electrical equipment. (1705.12.6)

-> **Wind-Force-Resisting Systems:**

☐ Wind Exposure Category B, wind speed minimum 120 MPH.

☐ Wind Exposure Category C or D, wind speed minimum 110 MPH.

**Design Wind
Speed**

 MPH

☐ Special Wind Region

☐ Windborne Debris Region (1609.2)

Design includes wind-force-resisting systems and components:

☐ Structural wood (1705.11.1)

☐ Cold-formed steel light-frame construction (1705.11.2)

☐ Roof covering, roof deck and roof framing connections. (1705.11.3)

☐ Exterior wall covering and wall connections to roof and floor diaphragms and framing. (1705.11.3)

Required Special Inspections, Test, Frequencies

☒ **STEEL CONSTRUCTION: Special Inspection is required.**

	Type	Continuous	Periodic	Reference Standard	Code
☒	Minimum inspections prior to welding.	X		AISC 360 Table N5.4-1	1705.2.1
☒	Minimum inspections during welding.	X		AISC 360 Table N5.4-2	
☒	Minimum inspections after welding.		X	AISC 360 Table N5.4-3	
☐	UT shall be performed on CJP groove welds subject to transversely applied tension loading in butt, T-, and Corner joints.	X	X 100% x10%	AISC 360 N5.5b	
☒	Minimum inspections prior to high-strength bolting (except for snug-tight joints)	X	X	AISC 360 Table N5.6-1	
☒	Minimum inspections during high-strength bolting (except for snug-tight joints). For pretension/slip-critical joints:	X	X	AISC 360 Table N5.6-2	
☒	Minimum inspections after high-strength bolting.		X	AISC 360 Table N5.6-3	
☒	Inspect fabricated or erected steel as appropriate to verify compliance with the construction drawings. Inspect braces, stiffeners, member locations, and joint details.	X		AISC 360 N5.7	
☒	Inspect during placement of anchor rods and other embedments supporting structural steel for compliance with the construction dwgs.	X		AISC 360 N5.7	
☐	Inspect welding of steel headed stud anchors.	X		AISC 360 N6 AWS D1.1/D1.1M	
☐	Verification for metal deck:	X X		AISC 360 N6	

☐ **COLD-FORMED STEEL DECK: Special Inspection is required.**

	Type	Continuous	Periodic	Reference Standard	Code
☐	Inspection or Execution Tasks Prior to Deck Placement		X	SDI QA/QC Table 1.1	1705.2.2
☐	Inspection or Execution Tasks After to Deck Placement		X	SDI QA/QC Table 1.2	
☐	Inspection or Execution Tasks Prior to Welding		X	SDI QA/QC Table 1.3	
☐	Inspection or Execution Tasks During Welding	X		SDI QA/QC Table 1.4	
☐	Inspection or Execution Tasks After Welding		X	SDI QA/QC Table 1.5	
☐	Inspection or Execution Tasks Prior to Mechanical Fastening		X	SDI QA/QC Table 1.6	
☐	Inspection or Execution Tasks During to Mechanical Fastening	X		SDI QA/QC Table 1.7	
☐	Inspection or Execution Tasks After to Mechanical Fastening		X	SDI QA/QC Table 1.8	

☐ OPEN-WEB STEEL JOISTS AND/OR JOIST GIRDERS: Special Inspection is required.					
	Type	Continuous	Periodic	Reference Standard	Code
	Installation of open-web steel joists and joist girders.				Table 1705.2.3
☐	End connections - welding or bolted.	-	X	SJI CJ,SJI K SJI LH/DLH OR SJI JG	
☐	Bridging - horizontal or diagonal	-	X	SJI CJ,SJI K SJI LH/DLH OR SJI JG	

☐ COLD-FORMED STEEL TRUSSES SPANNING 60 FT OR GREATER: Special Inspection is required.					
	Type	Continuous	Periodic	Reference Standard	Code
☐	Verify the temporary installation of restraint / bracing is installed per the approved truss submittal package.		X		1705.2.4
☐	Verify the permanent individual truss member restraint / racing is installed per the approved truss submittal package.		X		

☒ CONCRETE CONSTRUCTION: Special Inspection is required.					
	Type	Continuous	Periodic	Reference Standard	Code
☒	Inspect reinforcement, including re-stressing tendons, and verify placement.	-	X	ACI 318 Ch. 20, 25.2, 25.3, 26.5.1-26.5.3	1908.4
☐	Reinforcing bar welding:	X	X X	AWS D1.4 ACI 318:26.5.4	
☒	Inspect anchors cast in concrete.	-	X	ACI 318:17.8.2	-
☒	Inspect anchors post-installed in hardened concrete members.	X	X	ACI 318: 7.8.2.4 ACI 318: 17.8.2	Table 1705.3 footnote 'b'.
☒	Verify use of required design mix	-	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
☒	Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	-	ASTM C172 ASTM C31 ACI 318: 26.4.5,26.12	1908.10
☒	Inspect concrete and shotcrete placement for proper application techniques.	X	-	ACI 318: 26.4.5	1908.6, .7, and .8
☒	Verify maintenance of specified curing temperature and techniques.	-	X	ACI 318: 26.4.7-26.4.9	1908.9
☐	Inspect pre-stressed concrete for:	X X	- -	ACI 318: 6.9.2.1 ACI 318: 6.9.2.3	
☐	Inspect erection of precast concrete members.	-	X	ACI 318: 6.8	-
☐	Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	-	X	ACI 318: 26.10.2	-
☒	Inspect formwork for shape, location and dimensions of the concrete member being formed.	-	X	ACI 318: 26.10.1(b)	-

☐	MASONRY CONSTRUCTION: Level A – For Risk Category I, II, or III, designed using Prescriptive or Empirical design methods. Special Inspection is required.				
	Type	Continuous	Periodic	Reference Standard	Code
☐	Verify certificates of compliance prior to construction.		X	TMS 402, TMS 602 Table 3.1.1	1705.4

☐	MASONRY CONSTRUCTION: Level B – For Risk Category I, II, or III, designed using Engineered design methods, or Risk Category IV designed using Prescriptive design methods. Special Inspection is required.				
	Type	Continuous	Periodic	Reference Standard	Code
☐	Verification of Slump flow and Visual Stability Index (VSI) as delivered to the project site in accordance with Specification Article 1.5 B.1.b.3 for self-consolidating grout.	X	X	TMS 402 Table 3.1.2	1705.4
☐	Verification of f'_m and f'_{AAC} in accordance with Specification Article 1.4B prior to construction, except where specifically exempted by TMS 402.		X	TMS 402 Table 3.1.2	
☐	Verify compliance with the approved submittals.		X	TMS 602 Art 1.5	
	As masonry construction begins, verify the following are in compliance:				
☐	Proportions of site-prepared mortar		X	TMS 602 Art 2.1, 2.6A	
☐	Construction of mortar joints		X	TMS 602 Art 3.3B	
☐	Grade and size of prestressing tendons and anchorages		X	TMS 602 Art 2.4B, 2.4H	
☐	Location of reinforcement, connectors and prestressing tendons and anchorages.		X	TMS 602 Art 3.4, 3.6A	
☐	Prestressing technique		X	TMS 602 Art 3.6B	
☐	Properties of thin-set mortar for AAC masonry	X	X	TMS 602 Art 2.1C	
	Prior to grouting, verify that the following are in compliance:				
☐	Grout space		X	TMS 602 Art 3.2D, 3.2F	
☐	Grade, type and size of reinforcement and anchor bolts, and prestressing tendons and anchorages		X	TMS 402	
☐	Placement of reinforcements, connectors and prestressing tendons and anchorages		X	TMS 402 Sec 6.1, 6.2.1, 6.2.6, 6.2.7 TMS 602 Art 3.2E, 3.4, 3.6A	
☐	Proportions of site-prepared grout and prestressing grout for bonded tendon.		X	TMS 602 Art 2.6B, 2.4G.1.b	
☐	Construction of mortar joints.		X	TMS 602 Art 3.3B	

☐ **MASONRY CONSTRUCTION: Level C – For Risk Category IV designed using Engineered design methods. Special Inspection is required.**

	Type	Continuous	Periodic	Reference Standard	Code
☐	Verification of f'_m and f'_{AAC} in accordance with Specification Article 1.4B prior to construction and for every 5,000 sq. ft. during construction.	X	X	TMS 402 Table 3.1.3	1705.4
☐	Verification of proportions of materials in premixed or preblended mortar prestressing grout, and grout other than self-consolidating grout, as delivered to the project site.	X	X	TMS 402 Table 3.1.3	
☐	Verification of Slump flow and Visual Stability Index (VSI) as delivered to the project site in accordance with Specification Article 1.5 B.1.b.3 for self-consolidating grout.	X	X	TMS 402 Table 3.1.3	
☐	Verify compliance with the approved submittals.		X	TMS 602 Art 1.5	
	Verify that the following are in compliance:				
☐	Proportions of site-mixed mortar, grout and prestressing grout for bonded tendons.		X	TMS 602 Art 2.1, 2.6A, 2.6B, 2.6C, 2.4G.1.b	
☐	Grade, type, and size of reinforcement and anchor bolts, and prestressing tendons and anchorages		X	TMS 402 Sec 6.1, TMS 602 Art 2.4, 3.4	
☐	Placement of masonry units and construction of mortar joints		X	TMS 602 Art 3.3B	
☐	Placement of reinforcement, connectors and prestressing tendons and anchorages	X		TMS 402 Sec 6.1, 6.2.1, 6.2.6, 6.2.7 TMS 602 Art 3.2E, 3.4, 3.6A	
☐	Grout space prior to grouting	X		TMS 602 Art 3.2D, 3.2F	
☐	Placement of grout and prestressing grout for bonding tendons.	X		TMS 602 Art 3.5, 3.6C	
☐	Size and location of structural elements		X	TMS 602 Art 3.3F	
☐	Type, size and location of anchors including other details of anchorage of masonry to structural members, frames or other construction	X		TMS 402 Sec 1.2.1(e), 6.1.4.3, 6.2.1	
☐	Welding of reinforcement	X		TMS 402 Sec 8.1.6.7.2, 9.3.3.4(c), 11.3.3.4(b)	
☐	Preparation, construction and protection of masonry during code weather (temperature below 40 degrees F) or hot weather (temperature above 90 degrees F)		X	TMS 602 Art 1.8C, 1.8D	
☐	Application and measurement of prestressing force	X		TMS 602 Art 3.6B	
☐	Placement of AAC masonry units and construction of thin-bed mortar joints	X		TMS 602 Art 3.3B.9, 3.3F.1.b	
☐	Properties of thin-bed mortar for AAC masonry	X		TMS 602 Art 2.1 C.1	
☐	Observe preparation of grout specimens, mortar specimens and / or prisms.	X		TMS 602 Art 1.4B.2.a.3, 1.4B.2.b.3, 1.4B.2.c.3, 1.4B.3, 1.4B.4	

☐	WOOD CONSTRUCTION: Special Inspection is required.				
	Type	Continuous	Periodic	Reference Standard	Code
☐	Inspect high-load diaphragms for grade/thickness of sheathing, nominal size of members, fastener size, number and spacing.		X	Contr. docs	1705.5.1, 2306.2
☐	Metal-plate-connected wood trusses spanning 60 feet or greater: temporary installation restraint / bracing and permanent individual truss member restraint / bracing.		X	App. truss submittal package	1705.5.2

☒	SOILS: Special Inspection is required.				
	Type	Continuous	Periodic	Reference Standard	Code
☒	Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	-	X	Geotech Report, Contract Docs	Table 1705.6
☐	Verify excavations are extended to proper depth and have reached proper material.	-	X		
☐	Perform classification and testing of compacted fill materials.				
☐	Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	X	-		
☐	Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly	-	X		
☐	During fill placement inspector shall verify that proper materials and procedures.	X			

☐	DRIVEN DEEP FOUNDATIONS: Special Inspection is required.				
	Type	Continuous	Periodic	Reference Standard	Code
☐	Verify element materials, sizes and lengths comply with the requirements.	X	-	Geotech Report, Contract Docs	Table 1705.7
☐	Determine capacities of test elements and conduct additional load tests, as required.	X	-		
☐	Inspect driving operations and maintain complete and accurate records for each element.	X	-		
☐	Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to foundation element.	X	-		
☐	For steel elements, perform additional special inspections in accordance with Section 1705.2. (See Special Inspections for Concrete Construction.)	-	-		
☐	For concrete elements and concrete-filled elements, perform tests and additional special inspections in accordance with Section 1705.3. (See Special Inspections for Concrete Construction)	-	-		
☐	If applicable, RDP to identify: specialty elements, additional insp.	-	-		

☐	CAST- IN PLACE DEEP FOUNDATIONS: Special Inspection is required.				
	Type	Continuous	Periodic	Reference Standard	Code
☐	Inspect drilling operations and maintain complete and accurate records for each element.	X	-	Geotech Report, Contract Docs	Table 1705.8
☐	Verify placement locations and plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end-bearing strata capacity. Record concrete or grout volumes.	X	-		
☐	For concrete elements, perform tests and additional special inspections in accordance with Section 1705.3. (See Special Inspections for Concrete Construction)	-	-		

☐	HELICAL PILE FOUNDATIONS: Special Inspection is required.				
	Type	Continuous	Periodic	Reference Standard	Code
☐	Installation equipment used, pile dimensions, tip elevations, final depth, final installation torque [and any other information required by the RDP] shall be recorded.		X	Geotech Rept, Contr. Docs	1705.9

☒	SPRAYED FIRE-RESISTANT MATERIALS: Special Inspection and testing is required.

	Type	Continuous	Periodic	Reference Standard	
☒	Physical and Visual tests				1705.14.1
☒	Verify surface preparation in accordance with manufacturer's written instructions				
☒	Verify temperature and area ventilation before and after application in accordance with manufacturer's written instructions.				
☒	Verify thickness of sprayed fire resistant materials.			ASTM E605	
☒	Verify density of sprayed fire resistant materials.			ASTM E605	
☒	Verify cohesive/adhesive bond strength of sprayed fire resistant materials.			ASTM E736	
☒	Condition of finished application.				

☐	MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS: Special Inspection and testing is required.

	Type	Continuous	Periodic	Reference Standard	Code
☐	Verify surface preparation, application, and thickness in accordance with manufacturer's written instructions when applied to structural elements and decks.			AWCI 12-B	1705.15

☐	EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS): Special Inspection and testing is required.

	Type	Continuous	Periodic	Reference Standard	Code
☐	Water-resistive barrier coatings must be inspected when installed over a sheathing substrate, a water resistive barrier, and not over masonry, or concrete.			ASTM E2570	1705.16.1

☒	FIRE RESISTANT PENETRATIONS AND JOINTS: Special Inspection and testing is required.

	Type	Continuous	Periodic	Reference Standard	Code
☒	For high-rise buildings or Risk Category III or IV buildings inspect through-penetrations and membrane penetration firestops.			ASTM E2174, ASTM E814, UL 1479	1705.17, 714.3.1.2, 714.4.2
☒	For high-rise buildings or Risk Category III or IV buildings inspect fire-resistant joint systems and perimeter fire barrier systems.			ASTM: E119, E2393, E1966, E2307, UL 2079	1705.17, 715.3, 715.4

☐ SMOKE CONTROL SYSTEM: Special Inspection and testing is required.					
	Type	Continuous	Periodic	Reference Standard	Code
☐	Smoke control systems are to be tested during erection of ductwork and prior to concealment for leakage testing and recording of device location.		X		1705.18.1
☐	Smoke control systems are to be tested prior to occupancy and after sufficient completion of pressure difference testing, flow measurements and detection and control verification.		X		
☐ FABRICATED ITEMS: Special Inspection is required.					
	Type	Continuous	Periodic	Reference Standard	Code
☐	The RDP shall identify any structural, load-bearing or lateral load-resisting members or assemblies that are specified to be fabricated off site i.e. in a fabricator's shop. Special inspections shall be required for these items unless: See also the Fabricator Form in this packet for these items.				1705.10
☐	If the members or assemblies are to be fabricated on site, refer to their respective categories.				
☐ WIND-FORCE RESISTANT ITEMS: Special Inspection is required.					
	Type	Continuous	Periodic	Reference Standard	Code
☐	Structural wood	X	X		1705.11.1
☐	Cold-formed steel light-frame construction		X		1705.11.2
☐	Components: Roof covering, roof deck and roof framing connections		X		1705.11.3
☐	Components: Exterior wall covering and wall connections to roof and floor diaphragms and framing.		X		1705.11.3
☐ SEISMIC-FORCE RESISTANT ITEMS: Special Inspection is required.					
	Type	Continuous	Periodic	Reference Standard	Code
☐	Structural steel			AISC 341	1705.12.1.1 1705.12 1705.13.1.3
☐	Structural steel elements			AISC 341	1705.12.1.2 1905.13.1.2
☐	Structural wood	X	X		1705.12.2
☐	Cold-formed steel light-frame construction				1705.11.3
☐	Designated seismic systems		X	ASCE 7: 13.2.2	1705.12.4, 1705.13.4
☐	Arch. components: Ext.cladding, interior or exterior nonbearing walls and interior or ext veneer more than 30 ft above grade or walking surface.		X		1705.12.5
☐	Arch. components: Exterior cladding or interior or exterior veneer weighing more than 5 psf.		X		1705.12.5
☐	Arch. components: Interior nonbearing walls weighing more than 15 psf.		X		1705.12.5
☐	Architectural components: Access floors		X		1705.12.5.1
☐	Elect. Equip. anchorage for emergency and standby power systems		X		1705.12.6
☐	Other electrical equipment anchorage		X		1705.12.6
☐	Piping systems / mechanical units designed to carry hazardous materials: installation and anchorage		X		1705.12.6
☐	Ductwork designed to carry hazardous materials: installation and anchorage		X		1705.12.6
☐	Vibration isolation systems: installation and anchorage		X		1705.12.6
☐	Mechanical and electrical equipment, including ductwork, piping, and their structural supports where an automatic fire sprinkler installed in Seismic C, D, E, or F.		X		1705.12.6

	Type	Continuous	Periodic	Reference Standard	Code
☐	Storage racks; 8 feet or greater		X		1705.12.7
☐	Seismic isolation systems		X		1705.12.8
☐	Coldformed steel special bolted moment frames		X		1705.12.9
☐	SPECIAL CASES: Special Inspection is required. (1705.1.1)				
	Type	Continuous	Periodic	Reference Standard	Code
☐	Construction materials and systems that are alternatives to materials and systems prescribed by code, not addressed in other sections. [Note to RDP: you must identify specifically what is to be inspected.]				1705.1.1
☐	Unusual design applications of materials described in the code. [Note to RDP: you must identify specifically what is to be inspected.]				
☐	Materials and systems required to be installed per additional manufacturer's instructions that prescribe requirements not contained in the code or in referenced standards. [Note to RDP: you must identify specifically what is to be inspected.]				

	Category		Special Inspector Minimum Qualifications
☒	Reinforced Concrete	☐	Current ICC Reinforced Concrete Special Inspector or ACI Concrete Constr. Inspector
		☒	Concrete field testing by an ACI Concrete Field Testing Technical w/ Grade 1 cert.
		☐	Intern Engineer with relevant experience
		☐	NYS Registered Design Professional Engineer (RDP) with relevant experience
☐	Pre-Stressed Concrete		<u>Pretension Tendons</u>
		☐	Current ICC Reinforced Concrete certification and ACI Concrete Field Testing Technician with Grade 1 certification plus one year relevant experience
		☐	Intern Engineer with relevant experience
		☐	RDP with relevant experience
			<u>Post-Tension Tendons</u>
		☐	Current Post-Tensioning Institute (PTI) certification
		☐	Intern Engineer with relevant experience
		☐	RDP with relevant experience
☒	Welding	☒	Current AWS Certified Welding Inspector
		☐	Current ICC Structural Steel and Welding Certificate plus one year of relevant experience
		☐	Current Level II cert. from American Society for Non-Destructive Testing (NDT)
		☐	Current NDT Level III provided previously certified as NDT Level II
☒	High-Strength Bolting & Steel Frame Inspection	☒	Current ICC Structural Steel and Welding certification and one year of relevant experience
		☐	Intern Engineer with relevant experience
		☐	RDP with relevant experience
☐	Masonry	☐	Current ICC Structural Masonry certification and one year of relevant experience
		☐	Intern Engineer with relevant experience
		☐	RDP with relevant experience
☐	Sprayed Fire-Resistant Materials	☐	Current ICC Spray-Applied Fireproofing certification and one year of relevant experience
		☐	Intern Engineer with relevant experience
		☐	RDP with relevant experience
☒	Excavation and filling; verification of soils; piling & drilled piers; modular retaining walls	☒	Current Level II certification in geotechnical engineering technology/construction from the National Institute for Certification in Engineering Technologies (NICET)
		☐	Intern Engineer with relevant experience
		☐	RDP with relevant experience
☐	Inspection of Fabricators	☐	Precast: Current ICC Reinforced Concrete certification plus one year relevant experience
		☐	Bar Joist: see welding requirements
		☐	Metal Building: see welding requirements
		☐	Structural Steel: see welding requirements
☐	Seismic Items not addressed elsewhere	☐	Qualified person with one year of relevant experience
		☐	Intern Engineer with relevant experience
		☐	RDP with relevant experience
☐	Exterior Insulation and Finish System	☐	Intern Engineer with relevant experience
		☐	RDP with relevant experience
☐	Smoke Control	☐	Expertise in fire protection engineering, mechanical engineering and certified as an air balancer
		☐	The RDP responsible for design
☐	Fire-Resistant Penetrations & Joints, Special Cases	☐	Qualified person with one year of relevant experience
		☐	Intern Engineer with relevant experience
		☐	RDP with relevant experience

Contractor's Statement of Responsibility Form

SUCF Project No.: 291036-01

Project Title: Renovations to Relocate Admissions for Rehab of Administration Bldg – Phase 1A

Contractor: _____

Contractor's Acknowledgement of Special Requirements

I hereby acknowledge that I have received, read and understand there are special requirements contained in the contract documents. I hereby acknowledge control will be exercised to obtain conformance with the contract documents.

As the Contractor, I will coordinate with the Special Inspector(s) in order to accommodate all inspections and tests as required. I will integrate all inspection activities as provided by the Special Inspector into the Project Schedule.

☐ **I understand if this box is checked, this project includes the construction of a seismic-force-resisting system and / or a wind-force-resisting system as noted on page 2 of the Statement of Special Inspections.**

(Print Name / Signature / Date)

Fabricator's Certificate of Compliance Form

SUCF Project No.: 291036-01

Project Title: Renovations to Relocate Admissions for Rehab of Administration Bldg – Phase 1A

Contractor:

Fabricator:

Fabricated Item: Structural, load-bearing or lateral load-resisting members of assemblies consisting of materials assembled prior to installation in a building or structure, or subject to operations such as heat treatment, thermal cutting, cold working or reforming after manufacture and prior to installation in a building or structure. Materials produced in accordance with standards referenced by this code, such as rolled structural steel shapes, steel reinforcing bars, masonry units and wood structural panels, or in accordance with a referenced standard that provides requirements for quality control done under the supervision of a third-party quality control agency, are not “fabricated items”.

In lieu of special inspections during fabrication, a fabricator shall provide with the initial shop drawings for consideration:

- The fabricator's written procedural and quality control manuals AND
- Documentation from the most recent audit of fabrication practices.

Company that conducted the Audit:

Date of Last Audit: Name:

Contact Person: Address:

For ease in evaluation, the Fabricator may attach copies of a Fabricator's Certification or a copy of the latest building code evaluation service report, if applicable.

Date of most recent Approval: Certificate Number:

Certificate Issued by: (Name) Address:

Contact Person:

Post Fabrication Certification:

Provide a description of the structural, load bearing or lateral load-resisting assemblies that have been fabricated:

I hereby certify the items described above were fabricated in strict accordance with the approved contract documents.

(Print Name / Signature) (Print Title)

Special Inspector / Approved Agency Final Report

SUCF Project No.: 291036-01

Project Title: Renovations to Relocate Admissions for Rehab of Administration Bldg – Phase 1A

Contractor: _____

Special Inspector / Approved Agency: _____

We have completed the specified inspections and testing as identified in the Statement of Special Inspections dated _____. To the best of my information, knowledge and belief, the inspections we have completed have been performed and all discovered discrepancies have been reported to the Registered Design Professional in Responsible Charge.

All interim reports submitted prior to this Final Report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted,

(Signature / Date)

(Seal or Certification)

(Print Name)

(Print Title)

Special Conditions for Construction

Part 1 – Use of Premise

1.1 General

- A. Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. *For purposes of this provision, "site" shall include all existing structures.*
- B. The Building in which the Work is to be performed is currently occupied by offices and classrooms. Each Contractor shall have limited use of premises for construction operations, including use of Project site, during the construction period. Each Contractor's use of premises is limited only as outlined in this section and/or any other section of the specifications, or at the College's discretion, to perform work or to retain other contractors on portions of Project.
- C. Coordination with Other Contractors:
 - 1). The Contractor will need to have their portion of the Work coordinated with other Contractors working on the site so that their work conforms to the progressive operation of all the work covered under other contracts that the College has let on this site.
 - 2). Each Contractor shall afford other Contractors reasonable opportunities for the introduction and storage of their supplies, materials, equipment, and execution of their work.
 - 3). If the Contractor or such other contractors contend that their work of the progress thereof is being interfered with by the acts or omissions of the others or that there is a failure to coordinate or properly arrange the sequence of the work on the part of the Contractor or such other contractors, they shall, within five (5) working days of the commencement of such interference or failure of coordination or failure to perform work in proper sequence, give written notification to the College of such contention. Upon receipt of such notification or on its own initiative, the College shall investigate the situation and issue such instructions to the Contractor or such other contractors with respect thereto as it may deem proper. The College shall determine the rights of the Contractor and of such other contractors and the sequence of work necessary to expedite the completion of the work covered by said other contracts.
- D. All work is to be conducted in such a manner as to cause a minimum degree of interference with the College's operations and academic schedule. Contractor is to coordinate their work with the College's classroom schedule.
- E. The Contractor and its employees shall comply with all College regulations governing conduct, access to the premises, and operation of equipment.
- F. Maintain all paths of egress and keep clear of all materials and debris.
- G. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, and other adjacent occupied or used facilities without written permission from College.
- H. Should it become necessary, in the judgment of the College, at any time during the course of the Work to move materials which are stored on the site and equipment which has been temporarily placed thereon, the Contractor upon request of the College shall move them or cause them to be moved at its sole cost and expense; provided, however, if materials and equipment that have been stored or placed by the Contractor at a location on the site expressly approved, in writing, by the College and the same are moved or caused to be moved by the Contractor at the College's request, such removal shall be deemed extra work and the Contractor shall be compensated.

1.2 Campus Regulations

- A. The contractor and his/her employees, subcontractors, etc., will not fraternize with any building or campus occupants. This includes but is not limited to students, faculty, and employees of the State other than those designated, visitors and guests. At no time will it be appropriate to say anything derogatory to the above referenced individuals. Harassment, verbal or otherwise, of the above referenced individuals will **not** be tolerated. If an incident arises, the Contractor will be directed to **permanently remove** the employee from the site.
- B. No drugs are permitted on campus.

- C. No smoking is permitted on campus.
- D. The contractor, employees and sub-contractors are required to stay within the construction boundary lines at all times.
- E. The contractor, employees, and sub-contractors must recognize the fact that this is an institute for learning. Flexibility will be required during certain times of the academic year.

1.3 Use of Permanent Utilities

- A. As the building is still under construction, when each permanent utility is operational, it may be used for construction purposes, if acceptable, in writing, by the College. The written request for permission for use of the system from the College shall include, as a minimum, the conditions and reasons for use and provisions for and effect on equipment warranties. In the event that the College accepts the Contractors use of the permanent utility for the balance of the Work, the Contractor shall be fully responsible for it, and shall pay all costs for operation, power, restoration and maintenance of same.
- B. If the existing facilities are not adequate for the Contractor, locate temporary facilities where they will serve Project adequately and result in minimum interference with performance of the Work and disruption to the College. Any temporary facilities location is to be reviewed and approved by College's Representative.

1.4 Storage and Staging of Materials

- A. The following shall apply to this project
 - 1). The Contractor shall store materials and equipment within areas designated by the College.
 - 2). Security for stored equipment and materials shall be the responsibility of the Contractor.
 - 3). No vehicles will be permitted on the Plaza. Any and all materials and/or equipment brought or stored on the Plaza shall not exceed the maximum weight limit of 150 psf.
 - 4). Access to the construction site for delivery of materials and equipment is limited. Temporary parking for the loading and unloading of the same shall be arranged only with prior approval of the College.
 - 5). The Contractor shall at all times keep access routes, and parking and staging areas clean of debris and other obstructions resulting from the work.

1.5 Temporary Power for Construction Activities

- A. Electrical energy, as it exists within the work area, will be available at no cost to the Contractor from existing outlets or panels from locations approved by the College. As this site is still under construction, if electrical power is not available in the area of work, it is the Contractor's responsibility to provide necessary power to perform the Work. Typically available power may be used for small power tools (not exceeding ½ HP).

1.6 Temporary Lighting / Heating & Cooling / Water

- A. Electrical lighting, as it exists within the work area, is available to the contractor at no cost. As this site is still under construction, if electrical lighting is not available in the area of work, it is the Contractor's responsibility to provide necessary temporary equipment to perform the Work at its cost.

1.7 Temporary Sanitary Facilities

- A. Toilet, Water, and Drinking Water Facilities: The Contractor shall make arrangements with the College for use of the existing toilet, water, and drinking water facilities. It is the Contractor's responsibility to maintain the facility during the construction and restore to original state upon completion of the project.

1.8 Temporary Parking

- A. Contractor is to abide to the following:

- 1). The Contractor and its employees shall be subject to all the rules and regulations of the College, including parking regulations. The College is regulated by New York State Vehicle and Traffic Laws.
- 2). The Contractor and its employees shall only park in the designated areas in Lot #W-2. There shall be no parking in other areas of the campus (unless prior written authorization is provided by the College Chief of Police).
- 3). Parking violations are subject to fines and are the sole responsibility of the Contractor or its employees. Vehicles that are parked illegally may be towed at the expense of the owner/driver.
- 4). All vehicles are required at all times to register with the College's Public Safety Unit.
- 5). There is \$35.00 fee for parking permits. The fee is per vehicle and permits need to be display whenever the vehicle is parked on campus.

1.9 Temporary Support Facilities

- A. Construction Aids: Provide all items, such as lifting devices, all scaffolding, staging, platforms, runways, ladders; and all temporary flooring, as required by the various trades for the proper execution of the Work. Provide such construction aids with proper guys, bracing, guards, railings and other safety devices as required by the governing authorities and OSHA.
- B. Elevator and Loading Dock Usage: The Contractor shall make all arrangements with the College's Representative for the use of elevators as required for transporting material and workmen to the work areas and for the disposal of rubbish and waste materials.

1.10 Safety and Protection of Facilities

- A. The Contractor shall provide the necessary safeguards to prevent accidents, to avoid all necessary hazards and protect the public, the Faculty and Staff, students, the work, and the property at all times, including Saturdays, Sundays, holidays, and other times when no work is being done. The Contractor's safety plan shall be certified by a Certified Safety Professional from the Board of Certified Safety Professionals (www.bcsp.org).
- B. The Contractor shall erect, maintain and remove appropriate barriers or other devices, including mechanical ventilation systems, as required by the conditions of the work for the protection of the users of the project area, adjoining areas, the protection of the work being done, or the containment of dust and debris. All such barriers or devices shall be provided in conformance with all applicable codes, laws and regulations, including OSHA and National Fire Prevention Association 241, for safeguarding of structures during construction.
- C. Fire safety during construction:
 - 1). The Contractor shall provide all temporary equipment, labor and materials required for compliance with the applicable provisions of Chapter 14, Fire Safety during Construction and Demolition, of the Fire Code of New York State.
 - 2). For areas and spaces under their control, the Contractor shall comply with Chapter 14 of the Fire Code of New York State, titled "Fire Safety during Construction and Demolition". Subject to approval by the College's Consultant and the College, the Contractor shall designate one person as the **fire prevention program superintendent**. This superintendent shall be responsible for the fire prevention program required by Section 1408 of the Fire Code of New York State and implementing the minimum safeguards for construction, alteration, and demolition operations that provide reasonable safety to life and property from fire during the Contractor's operations. Responsibilities also include developing and maintaining pre-fire plans per 1408.2, the training of the Contractor's workforce per 1408.3, maintenance of the fire protection equipment per 1408.4, supervising hot work operations per 1408.5, and implementing temporary impairment to existing fire protection systems per 1408.6 & 1408.7. This superintendent shall also provide periodic written reports at the field meetings and respond to questions raised concerning compliance with Chapter 14 of the Fire Code of New York State.

D. Contractor shall comply with Labor Law Section 220-h; provide workers certified as having successfully completed the OSHA 10-hour construction safety and health course; and comply with applicable NYS DOL rules and regulations for monitoring and reporting compliance.

E. Temporary Fire Protection:

- 1). If the existing building is to be partially occupied during the course of the project, all existing exits and fire protection systems shall be continuously maintained in the occupied spaces/phases, or other measures must be taken which in the opinion of the College's Consultant and/or College will provide equal safety. Those portions occupied by the College must be available for their use 24 hours a day, seven days a week during the contract period unless otherwise scheduled in these documents. Comply with all applicable State and Federal codes and regulations. The cost of all labor, fire watches, variances, materials, installations, maintenance and removal of such temporary fire protection systems or modifications to the existing systems are the responsibility of the Contractor.

F. Fire Watch Requirements:

- 1). If any of the work of the Contractor;
 - a) Disables any fire suppression systems, standpipes systems, fire alarm systems, fire detection systems, smoke control systems and/or smoke vents as defined in Chapter 9 of the Fire Code of New York State (FCNYS).
 - b) Involves welding, cutting, open torches and other hot work as defined in Chapter 26 of the FCNYS and/or involves demolition activities that are hazardous in nature as defined in Chapter 14 of the FCNYS.

Then the Contractor shall provide a fire watch or perform the work during the hours where the building is scheduled by the College to be closed, in accordance with Section 901.7 of the FCNYS, for structures that have campus occupancy.

- 2). If a fire watch is required, the Contractor shall provide all labor that is required. The Contractor shall:
 - a) Contact the New York State Department of State Office of Fire Prevention and Control (OFPC) at 41 State Street, Albany, NY 12231-0001, Phone: (518) 474-6746, Fax: (518) 474-3240, e-mail: fire@dos.state.ny.us and obtain its currently amended recommendation for fire watch procedures. Review the OFPC recommendations and notify the College's Consultant and/or College Representative if there are significant discrepancies with the requirements of this section.
 - b) Review the fire watch procedures with the College's alarm monitoring staff (University Police – 914-251-6900) and the fire department prior to disabling a fire protection system. Submit a plan for the fire watch for approval by the College's Consultant and/or College Representative, and schedule a pre-system shutdown meeting with the College's Consultant and/or College Representative.
 - c) Employ, instruct and maintain competent fire watch personnel. Provide the sufficient number of dedicated personnel that are required to patrol all portions of the means of egress system in the facility in the period of time required.
 - d) Notify University Police (UPD) prior to and at the conclusion of the fire watch.
 - e) Employ competent personnel to fix the fire protection system (see section 1.11 below).
- 3). Fire Watch Duties: Personnel serving as a fire watch have the following duties:
 - a) Conduct periodic patrols of the entire facility as specified below.
 - b) Identify any fire, life or property hazards.
 - c) Notify the UPD if a fire is discovered by call (914-251-6911), with the exact address and type of emergency.
 - d) Notify occupants of the facility of the need to evacuate. If sirens or public address function of the alarm system are still functional, use them to assist with evacuation of the building.
 - e) Have access to at least one means of direct communication with UPD. A cell phone is acceptable.
 - f) Maintain a written log of fire watch activities.

- g) Have knowledge of the location and use of fire protection equipment, such as fire extinguishers.
(Note: The fire watch will not perform fire-fighting duties beyond the scope of the ordinary citizen).
 - h) Perform no other duties that are not directly part of the fire watch duties.
- 4). Frequency of Inspections: Fire watch personnel should patrol the entire facility patrol every 30 minutes except in the following situations, where patrols shall be every 15 minutes:
- a) The facility has people sleeping.
 - b) The facility is an institutional occupancy.
 - c) The facility is an occupied assembly or educational occupancy.
- 5). Record Keeping: A fire watch log should be maintained at the facility. The log should show the following:
- a) Address of the facility.
 - b) Times that the patrol has completed each tour of the facility.
 - c) Name of the person(s) conducting the fire watch.
 - d) Records of communication(s) to the University Police.
 - e) Record of other information directed by the College's Consultant and/of the College Representative.

1.11 Modifications / Alterations to Campus Existing Fire Alarm Systems

- A. The Campus standard for its fire alarm is the Edwards Fire Alarm System. Any contractor working on the Campus fire alarm system must be a licensed fire alarm installer. Any contractor working on adding to or modifying the existing fire alarm system's programming, must be certified to work on an Edwards Fire Alarm System and provide proof of that certification.
- B. A Pre-Fire Alarm construction meeting will be required between the Contractor, their fire alarm sub-contractors, and the College's Representative prior to any fire alarm work occurring.
- C. Contractor shall coordinate all modifications and/or alternations to the existing building's fire alarm systems with the College's Representative. If the work shall affect the existing fire alarm system in adjoining areas, the contractor must submit, in writing, their plan to protect and maintain the systems in the adjoining spaces, to the College's Representative for the College's review and approval, at least 72 hours in advance.
- D. Where demolition and dust may impact existing fire alarm smoke heads, the contractor shall protect these heads prior to beginning any work and follow the College's protocol listed below. If smoke heads are protected during the day, while work is occurring, the Contractor must uncover these heads at the end of each work day before leaving the site. The fire alarm systems must be operational at all times during construction. In the event that there is a need to shut down the system, the Contractor must notify the College in writing at least 72 hours in advance and provide a Fire Watch for all of the areas affected by the shutdown during the times the systems are non-operational.
- E. Where work will impact the existing fire alarm system, the contractor's site supervisor must follow the following protocol:
 - 1) Contractor Supervisor to contact the College's University Police (251-6900) prior to beginning work for the day and let them know where work is occurring and which smoke heads are being covered or device made inoperable.
 - 2) Cover smoke heads and make scheduled devices inoperable. Call University Police once heads are covered.
 - 3) Contractor to perform scheduled work.
 - 4) At the end of the work day, Contractor Supervisor to College's University Police and let them know smoke head covers are being removed. It's strongly recommended that Contractor let's day's dust settle and clean around the devices prior to removing protective covers.

Part 2 – Party Responsibilities

2.1 Information and Services Required of the College

- A. Furnished Information: College shall furnish (if available) surveys, existing plans, or other required information describing physical characteristics, legal limitation and utility locations for the site of the Project, and a legal description of the site. These documents are for information purposes only. They are to be field verified by the Contractor for accuracy. The College will not be responsible if actual conditions vary from what is indicated on the documents. Plans will be released to awarded Bidder in PDF electronic format.
- B. College's Right to Stop the Work: If Contractor fails to correct Work which is not in accordance with the requirements outlined, or fails to carry out Work in accordance with the Contract Documents, the College, by written order signed personally or by an agent specifically so empowered by the College in writing, may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the College to stop the Work shall not give rise to a duty on the part of the College to exercise this right for the benefit of Contractor or any other person or entity.
- C. College's Right to Carry Out the Work: If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten (10) business-day period after receipt of written notice from College to commence and continue correction of such default or neglect with diligence and promptness, College may, without prejudice to other remedies College may have, correct such deficiencies. *College may offset* from payments then or thereafter due Contractor the cost of correcting such deficiencies, including compensation for Consultant's additional services and expenses made necessary by such default, neglect or failure. If payments then or thereafter due Contractor are not sufficient to cover such amounts, Contractor shall pay the difference to the College.

2.2 Information and Services Required of the Contractor

- A. Review of Contract Documents: Contractor shall carefully study and compare the Contract Documents with each other and with the information furnished by the College, and shall at once report to the College Representative errors, inconsistencies or omissions discovered.
- B. Review of Field Conditions: Contractor shall, *sufficiently in advance of undertaking the Work*, take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to Contractor with the Contract Documents. Errors, inconsistencies or omissions discovered shall be reported to the College Representative at once. *If Contractor performs any construction activity which involves an error, inconsistency or omission which Contractor knew of or should reasonably have known of, without notice to College, Contractor shall assume responsibility for such performance and shall bear all costs of correction.*
- C. Construction Schedule: Contractor, promptly after being awarded the Contract, shall prepare and submit for College Representative, a Contractor's construction schedule for the Work.
- D. Supervision:
 - 1). Contractor shall supervise and direct the Work, using Contractor's best skill and attention. Contractor shall be solely responsible for and have control over *construction means*, methods, techniques, sequences and procedures *including safety programs and procedures*, and for coordinating all portions of the Work under the Contract.
 - 2). Contractor shall enforce strict discipline and good order among Contractor's employees and other persons carrying out the Contract. Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.
 - 3). Contractor shall be responsible for inspection of related portions of Work already performed, *as well as existing conditions*, to determine that such are in proper condition to receive subsequent Work.
- E. Contractor shall be responsible to College for acts and omissions of Contractor's employees, Subcontractors and their agents and employees, and other *persons or entities directly or indirectly employed by them* performing portions of the Work under a contract with Contractor

F. Cutting and Patchwork:

- 1). Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.
- 2). Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying or load-deflection ratio.
- 3). 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 (i.e., mechanical systems, plumbing, fire alarm, etc.).
- 4). Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
- 5). Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
- 6). Dispose of demolished items and materials promptly.
- 7). Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- 8). Existing utilities services to the College must be maintained at all times. If the Contractor is required to affect these services in order to complete the Work, Contractor must obtain written permission from the College prior to this work (also see Special Requirements Section). Any damage or disruption of services shall need to be repaired immediately and at the Contractor's expense.

G. Hot Work Permits:

- 1) If the work requires any Hot Work (including cutting, welding, Thermit welding, brazing, soldering (except soldering electronics or electrical components with an electric soldering iron or gun), grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems or any other similar situation), the Contractor shall be required to obtain a Hot Work Permit issued by the College. The Contractor shall request this through the College Representative, and be given a copy of the College's "Hot Work Guidelines and Permit Process" and the permit forms to be filled out. The Contractor must request, submit, and be given a permit before any Hot Work begins.

H. Cleaning Up:

- 1). Contractor shall *at all times* keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work Contractor shall remove from and about Project waste materials, rubbish, Contractor's tools, construction equipment, machinery and surplus materials.
- 2). If Contractor fails to clean up as provided in the Contract Documents, College may do so and the cost thereof shall be charged to Contractor.
- 3). If a dispute arises among Contractor, separate contractors and College as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described above, College may clean up and allocate the cost among those responsible

I. Access to Work: Contractor shall provide College access to *all portions* of the Work in preparation and progress wherever located.

2.3 Communications Protocol for Contract Administration

- A. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, Contractor shall communicate through the College Representative to the College. Communications by and with College's consultants shall be through College Representative. Communications by and with Subcontractors and material suppliers shall be through Contractor.

SECTION 024119

SELECTIVE DEMOLITION

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. Protection of existing building and spaces to remain and shoring of the structure as required for structural integrity and personal safety.
 - 4. Protection of existing curbs and sidewalks.
 - 5. Temporary coverage passageways.
 - 6. Alterations, selective demolition and removals of exterior façade elements where noted.
 - 7. Patching and refinishing of existing surfaces damaged as a result of this work.
 - 8. Select brick removal – Section 0420120.
 - 9. Protection.
 - 10. Location of concealed existing conditions per Non-Destructive Building Examination – Spec Section Section 017136.

1.3 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 New York, who shall design and supervise installation of all underpinning and shoring as required.

1.4 RELATED SECTIONS

- A. Alteration and removal requirements for mechanical and electrical work - Mechanical and Electrical Sections.

1.5 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 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.

1.6 SPECIAL PRECAUTION

- A. Hazardous materials may be encountered during demolition operations including asbestos; comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

1.7 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 commencement of construction.
 - 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 and Pedestrians
 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.
- 1.8 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

Refer to Part 3 - Execution, for Product Requirements

PART 3 EXECUTION

3.1 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.

3.2 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.

3.3 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.

3.4 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. Existing waterproofing systems and flashings shall be carefully exposed and protected to maintain workable conditions of fitting new work with existing construction.
 8. Proceed with demolition in a systematic manner.
 9. Demolish concrete and masonry in small sections.
 10. 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.

3.5 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. Confine cutting of existing roof areas designated to remain to the limits required for the proper installation of the new work. Cut and fold back existing roofing. Cut and remove insulation and related items. Provide temporary weathertight protection as required until new roofing and flashings are installed. Consult the Owner to ascertain if existing guarantee bonds are in force and execute the work so as not to invalidate such bonds.

- J. Where utilities are removed, relocated or abandoned, cap, valve, plug, or by-pass to make complete and working installation.
- K. Restore existing pipe and duct coverings damaged by work under this Contract to original undamaged condition.
- L. 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.
- M. 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.
- N. 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.
- O. 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.
- P. 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.
- Q. 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.

- R. 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.
- S. 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.
- T. Where removing existing floor finish and base, remove all adhesive and leave floors and walls smooth and flush, ready to receive new finish.
- U. Finish new and adjacent existing surfaces as specified for new work. Clean existing surfaces of dirt, grease and loose paint before refinishing.

3.6 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.

3.7 CLEANING UP

- A. Remove debris as the work progresses. Maintain existing premises in a neat and clean condition.

END OF SECTION

SECTION 028213

ASBESTOS ABATEMENT

Asbestos

The following shall apply to the abatement of asbestos being done under this contract:

- a. **Applicable Regulations:** All work to be done under this Contract shall be in compliance with Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York (cited as 12 NYCRR Part 56), as currently amended, and applicable federal and state regulations.
- b. **Presumed Asbestos-Containing Material:** During any work of this contract that disturbs existing material, all material that can be defined as "presumed asbestos-containing material" according to 29 CFR Part 1926 **and guidance documents published by New York State Department of Health's (NYSDOH) Environmental Laboratory Approval Program (ELAP) and Bureau of Occupational Health (BOH), and the NYS Department of Labor (DOL)** shall be considered asbestos-containing materials unless asbestos test results bound at the end of this section indicated otherwise; or if the Contractor, at its own expense, tests the presumed asbestos-containing material and rebuts the presumption, as permitted by 29 CFR Part 1926.
- c. **Applicable Variance:** During the performance of the work, comply with the requirements of variance(s), if any, obtained by the Owner and/or consultant, which are bound after this section. The Contractor is responsible for the cost and the time required to obtain any additional variance(s) that they deem desirable in the performance of the work and feel may be consistent with the policies/ procedures as set forth in 12 NYCRR Part 56. **Prior to requesting any additional variance(s), submit a draft(s) of the request to the Consultant and the Fund for review and approval.** Copies of all additional variance(s) obtained by the Contractor shall be provided to the Consultant, Fund and the Campus prior to performing any work affected by the additional variance(s).
- d. **Owner Project Fact Sheet:** The Contractor shall complete and submit three copies of the Asbestos Material Fact Sheet (appended to this Section) to the Fund prior to the project startup. If the initial submission is not complete for a reason approved by the Fund, the complete Asbestos Material Fact Sheet shall be submitted prior to acceptance of the applicable work.
- e. **Air Monitoring:** The Owner shall be responsible for hiring and paying an independent third party firm to perform the requirements of air monitoring as called for in 12 NYCRR Part 56 and as permitted in Section 2.17 of the Agreement. The Owner's air monitoring firm shall provide 24 hour turn around on tests, will work during the hours between 7 AM and 4 PM on Monday through Friday unless otherwise agreed to by the Owner, and may inspect the work for cleanliness prior to performing sampling. Cooperate with the Owner's air monitoring firm in sequencing and scheduling the work in concert with the air monitor's availability. Provide access, electrical power and lighting, cleaning, and other work required to facilitate successful air monitoring activities. Provide additional air monitoring, at no expense to the Owner, as required to protect and monitor on site workers if required by applicable safety regulation or the contractor's safety plan.
- f. **Disposal Procedures:** It is the responsibility of the Contractor to determine and comply with the waste handling, transportation and disposal regulations in effect at the time the work is performed, as applicable to the work site(s) and proposed waste disposal facility/landfill(s). The asbestos contractor must comply fully with the latter regulations and all other applicable U.S. Department of Transportation, Environmental Protection Agency (EPA), and other Federal, State and local rules and regulations in effect at the time the work is performed. Submit three copies of all pertinent manifests to the Owner. Use a single source facility for disposal of all waste of similar type and category.
- g. **Submittals:** Prior to commencement of the work on this project, the Contractor must submit the following to the Owner:
 - 1) Copy of original insurance policy.
 - 2) Copy of Department of Labor notification.
 - 3) Copy of EPA notification.
 - 4) Abatement Plan Layout - Decon, Negative Air Lines, Variances.
 - 5) SUCF Asbestos Removal Fact Sheet.
 - 6) Product Information - Encapsulant, Mask, etc.
 - 7) Material Safety Data Sheets.
 - 8) Asbestos Handling License.

- 9) Waste Transporter Permits.
- 10) Dumping Receipt - Waste Manifest.
- 11) Testing Lab - License, Certification.
- 12) Employees - Workers Acknowledgement, Certification.
- 13) Supervisor's Certification

h. Special Requirements

- 1) The drawings, schedules and specifications indicate the applicable scope of abatement work.
- 2) The Contractor shall have at least one English-speaking supervisor on the job site at all times while the project is in progress.
- 3) Prior to the commencement of work involving asbestos demolition, removal, and/or renovation, the Contractor must submit to the Owner the name of its on-site asbestos supervisor responsible for such work and the named supervisor's NYS certification documentation showing completion of an EPA approved training course for asbestos supervisors. The approved supervisor shall maintain such certification during the work and be on site at all times when abatement work is being performed.
- 4) If a waste shipment record has not been returned to the Owner within 45 days, a report must be filed by the Owner with the EPA describing the steps the Owner has taken to determine the status of the shipment. During the Owner's preparation of the latter report, the Contractor shall give its constant personal attention and assistance in determining the status and disposition of the shipment.

STATE UNIVERSITY CONSTRUCTION FUND
ASBESTOS MATERIAL REMOVAL FACT SHEET

SUCF PROJ NO. PROJECT TITLE DATE

SCOPE OF WORK:

ASBESTOS CONTRACTOR: PRIME CONTRACTOR:
Name/Address (If applicable)

Phone No. Phone No.

Contract Award Amount: Asbestos Lic No.
Contract Completion Date: Expiration Date:

ASBESTOS ABATEMENT PERSONNEL: *(Attach Additional Sheets as Required)*

	Name	Title/Function	Social Security No.	Certificate No.	Expir. Date
1.					
2.					
3.					
4.					
5.					

ASBESTOS ABATEMENT WORK: *(Attach Additional Sheets as Required)*

	Bldg (1) Usage	Removal Location (Bldg/Room)	Mat'l (2) Removed.	Quantity (3)	Methods of Removal
1.					
2.					
3.					
4.					
5.					

Date Removal Begins: Date Removal Ends

Asbestos Carrier Disposal Site

Phone No. Phone No.

Hauler Permit No.(s):

NOTE: *In addition to the above information, the contractor shall submit all required documentation as stipulated by the New York State Labor Law Article 30; Part 56, 12NYCRR, which includes a copy of the asbestos contractor license and all asbestos handling certificates, waste transporters permits, disposal receipt acknowledgement, and air test reports (prior, during, and after abatement)*

STATE UNIVERSITY CONSTRUCTION FUND
ASBESTOS MATERIAL REMOVAL FACT SHEET

KEY

BUILDING USAGE

A Administration
B Academic
C Library
D Health/Physical Education
E Dining Halls

F Dormitory
G Mechanical Room
H Steam Tunnel
I Other

MATERIAL REMOVED

Acoustical/Decorative Plasters =
Fireproofing Materials =
Troweled Wall/Ceiling Plasters =
Mud Joints/Tees =
Pipe Covering =
Boiler/Hot Water Tank Insulations =
Panels/Ceiling Tiles =
Transite Panels =
Vent/Drain Pipes =
In-Place Gaskets =
Vinyl Asbestos Siding =
Vinyl Asbestos Tile =
Vinyl Asbestos Roofing =
Other (Describe) =

ADP
FM
TCP
MJT
PC (List Pipe Size)
BHTI
PCT
TP
VDP (List Size)
IPG
VAS
VAT
VAR
0: _____

QUANTITY OF MATERIAL

S.F. = Square Feet i.e. Walls, Ceiling, etc.
L.F. = Linear Feet i.e. Pipe, etc.

WET

DRY

GLOVEBAG

TENT

OTHER _____

SECTION 028313

LEAD REMEDIATION

Tests results are bound at the end of this section and indicate that paint, soil and/or other existing materials contain lead and a probable leachable lead content of greater than 5ppm.

- a. The Contractor shall remove, contain, capture, collect and dispose of the lead containing materials in compliance with all current and pending Federal and State regulations, including the Environmental Protection Agency (EPA), the Resource Conservation and Recovery Act (RCRA), the Hazardous and Solid Waste Amendment (HSWA) the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the Occupational Safety and Health Administration (OSHA), and especially 29 CFR 1926 for protection of workers.
- b. The Contractor shall bear responsibility for insuring that the waste is properly handled at each stage of operation and properly stored in approved containers. The Campus shall be the generator of the waste, and shall supply its EPA I.D. number and address for use in filling out the manifests. The Contractor shall be responsible for the preparation of the manifest (information and tracking form) to be signed by all applicable parties. The Contractor shall allow two weeks for the Campus to review and sign the completed manifests.
- c. The Contractor shall hire an environmental or chemical testing laboratory, accredited by the State of New York, as legally required to sample and test the waste in accordance with EPA method 1311, Toxicity Characteristic Leaching Procedure (TCLP).
- d. Waste classified as hazardous shall be shipped off site for treatment, treated on site, or recovered and reused in compliance with Federal and State regulations. Obtain all applicable permits. Provide certification of disposal to the campus.
- e. All work areas involving demolition, cutting, modification, etc., to any existing materials shall be considered a lead hazard area per 29 CFR 1926 for the protection of workers unless the contractor removes the potential sources of air borne lead.

SECTION 02 84 00

CAULK REMOVAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Test results included within this Division indicate that certain caulk materials contain PCBs at a concentration greater than 50 parts per million and do not contain asbestos. The following shall apply to the removal of PCB non-remediation waste (PCB bulk product waste) being done under this contract:
- B. PCB non-remediation waste: Debris generated from construction materials manufactured with PCBs with a concentration greater than 50 ppm. This debris can be the result of building renovation and demolition projects. This debris is also referenced as PCB bulk product waste.
- C. Testing: The Fund and Campus reserve the right to employ an independent testing laboratory to perform testing on the work and air sampling. The Contractor shall be required to cooperate with the testing laboratory.
- D. When performing any tasks in work areas that contain this product, the contractor is responsible for PPE (Personal Protective Equipment) for all workers, in accordance with all applicable regulations.
- E. Size, location, and quantities of all caulk must be field verified. Information given on the drawings and/or specifications is for bidding purposes only.
- F. The Contractor shall have at least one English-speaking supervisor on the job site at all times while the project is in progress.
- G. The Contractor will be responsible for any damage resulting from improper storage and accidental spills or releases. The supervisor must be able to communicate fluently with all workers and the Owner.

1.2 EXECUTION

- A. When working with caulk, work practices shall be performed in a manner that minimizes or prevents airborne dust generation and release to adjacent areas. Aggressive removal techniques, such as power grinding or sanding, shall not be used to remove or dislodge caulk or adjacent materials. The use of hand prying and scraping techniques shall be used to control airborne dust generation. Windows shall be closed and ground covered with plastic from exterior face of building to 10'-0" away from exterior face or furthest point of gravity fall for material dislodged by removal techniques employed, whichever is further. Debris shall be collected and area shall be wiped down to collect dusts in accordance with all applicable regulations
- B. It is the responsibility of the Contractor to determine current waste handling, transportation and disposal regulations for the work site and the waste disposal landfill. The contractor must comply fully with these regulations, all appropriate U.S. Department of Transportation, EPA and Federal, State and locally applicable regulations, and all other current legal requirements. The Contractor shall bear responsibility for managing and handling the waste at each stage of operation and properly storing in approved containers.
 - 1. Submittals: Prior to commencement of the work on this project, the Contractor must submit the following to the University:
 - a. Remediation Plan – General practices and procedures to be followed.
 - b. Worker HAZWOPER certifications and proof of medical testing.
 - c. Copy of Waste Transporter Permits/License.
 - d. Copy of Hazardous Waste Manifest to be used.
 - e. Copy of disposal facility license to accept and dispose of PCB waste stream.
 - 2. Prior to the commencement of work involving PCB removal, the Contractor must submit to the University the name of its on-site supervisor responsible for such operations, as well as documentation that the supervisor has completed an OSHA HAZWOPER training course.

1.3. SCOPE OF WORK

A. Removal and disposal of the PCB is not currently anticipated per report dated August 10, 2022

*“Pre-Construction Survey Report For Asbestos-Containing Materials (Acm) Lead-Based Paints (Lbp)
Polychlorinated Biphenyl (PCB)”*

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION

APPENDIX A
CAULK TEST RESULTS



Quality Environmental Solutions & Technologies, Inc.

**PRE-CONSTRUCTION SURVEY REPORT
FOR
ASBESTOS-CONTAINING MATERIALS (ACM)
LEAD-BASED PAINTS (LBP)
POLYCHLORINATED BIPHENYL (PCB)**

**Prepared for:
SUNY PURCHASE
735 Anderson Hill Road
Purchase, NY 10577**

at

**SUNY PURCHASE
CMFT AND PASSAGE GALLERY ADMINISTRATION RELOCATION
PROJECT
735 Anderson Hill Road
Purchase, NY 10577**

August 10, 2022

QuES&T Project #Q22-4843

QuES&T

Quality Environmental Solutions & Technologies, Inc.

August 10, 2022

SUNY Purchase
735 Anderson Hill Road
Purchase, NY 10577

ATTN: Anne-Marie Rusillo

Via E-mail: anne-marie.rusillo@purchase.edu

Re: CMFT and Passage Gallery Administration Relocation Project
Pre-Renovation Asbestos, Lead, PCB
QuES&T Project #Q22-4843

Dear Ms. Rusillo,

Attached is the Pre-Renovation Inspection Report for Asbestos-containing Materials (ACM), Lead-Based Paints (LBP), Polychlorinated Biphenyls (PCB identified throughout areas included within the above-referenced location(s) by **Quality Environmental Solutions & Technologies, Inc. (QuES&T)**. The inspection included visual assessment of the location in question, and representative sampling, as required, in compliance with the requirements of all applicable federal, state, and local regulations.

The attached report summarizes the inspection protocol and inspection results for your review. **QuES&T** believes this report accurately reflects the material condition existing in the functional spaces at the time of our inspection.

Should you wish to discuss this matter further or require additional information concerning this submittal, please contact us at (845) 298-6031. **QuES&T** appreciates the opportunity to assist SUNY Purchase in the environmental services area.

Sincerely,



Todd McAfee

Project Manager

NYS/AHERA Inspector/Project Designer

Cert. #AH 12-10881

EPA Lead Inspector/Risk Assessor



Quality Environmental Solutions & Technologies, Inc.

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EXECUTIVE SUMMARY

Quality Environmental Solutions & Technologies, Inc. (**QuES&T**) was retained by Clark Patterson Lee to conduct a Pre-Construction Survey for the presence of Asbestos-containing Materials (ACM), Lead-based Paints (LBP), Polychlorinated Biphenyl's (PCB) in support of the proposed CMFT and Passage Gallery Renovation Project at SUNY Purchase Campus, located at 735 Anderson Hill Road, Purchase, NY 10577.

The survey included a visual inspection/assessment for suspect hazardous material(s), as detailed above, which are likely to be affected by planned demolition/renovations/construction activities. Inspection and sampling was limited to areas/materials slated for demolition/renovation/construction, as detailed in drawings, dated March 28, 2022, by Kliment Halsband Architects.

The survey was conducted by **QuES&T** personnel on July 22, 2022. Asbestos, Lead & PCB inspections and/or sampling was conducted by NYSDOL Asbestos Inspector(s) Todd McAfee (Cert. #AH 12-10881) and Greg Dean (Cert. #AH 10-10947). The lead survey was conducted Niton-Certified XRF Technician Todd McAfee utilizing X-Ray Fluorescence Technology (XRF).

ASBESTOS

Laboratory analysis and/or existing sampling data indicated the following materials as Asbestos-containing Materials (greater than 1% asbestos) (**Refer to Table I & Appendix A for details and locations**)

None Identified

LEAD

Based on review of the data generated by the Niton XLp-300A XRF Spectrum Analyzer, the following surfaces within the scope of work were identified as lead-based as defined by HUD/EPA (equal to or in excess of 1.0 milligram per square centimeter) (**Refer to Table II & Appendix B for details**):

Large Storage Room (Accessible from Elevator Lobby) – Doors and Door Casings

It should be noted that several components tested did in fact contain minimal lead-levels below the EPA threshold level of 1.0 mg/sq. cm for classification as Lead-Based Paint (LBP) and are considered lead-containing coatings by the OSHA Regulation, "Lead Exposure in Construction" (29 CFR 1926.62). OSHA does not recognize a minimum limit for lead concentrations in paint for the purposes of disturbance. Monitoring of workers performing demolition/cleaning/disturbance of painted surfaces shall be completed to document personnel occupational exposure. Items containing any amount of lead concentration are considered lead-containing coatings per 29 CFR 1926.62, OSHA Lead Exposure in Construction.

PCB

- Materials are considered to be hazardous if they contain greater than fifty (50) parts per million (ppm) of PCBs based on a sum of all Aroclors. Laboratory analysis indicates that the following materials are hazardous based on PCB concentrations of greater than 50 ppm.

None Detected

1.0 INTRODUCTION:

Quality Environmental Solutions & Technologies, Inc. (**QuES&T**) performed a Pre-Construction Survey for the presence of Asbestos-containing Materials (ACM), Lead-based Paint (LBP) and Polychlorinated Biphenyls (PCB) in conformance with the requirements of all applicable federal, state, and local regulations. The survey included a visual inspection/assessment, and representative sampling of suspect hazardous materials, as required, throughout accessible interior and exterior locations to be affected by proposed future renovations of the CMFT and Passage Gallery areas.

Certified **QuES&T** personnel, Todd McAfee, conducted field inspection(s) on July 22, 2022. The inspection scope was established based on review of work scope drawings provided by Kliment Halsband Architects Lee. Findings from previous surveys conducted by **QuES&T** were not utilized in this inspection.

QuES&T established functional spaces based either on physical barriers (i.e. walls, doors, etc.) or homogeneity of material. Within each functional space identified, a visual inspection was performed using reasonable care and judgment, to identify and assess location, quantity, friability, and/or condition, as applicable, of all accessible installed building materials observed at the affected portion of the building/structure.

Limited localized demolition of building surfaces was performed, as part of this survey, to access concealed surfaces. No disassembly of installed equipment was conducted as part of this inspection. ACM, LBP and/or PCB's, concealed within structural components and equipment interiors or that is accessible only through extensive mechanical or structural demolition may not have been identified as part of this survey.

Homogenous material types were established based on appearance, color and texture. The findings presented in this report are based upon reasonably available information and observed site conditions at the time the assessment was performed. The findings and conclusions of this report are not meant to be indicative of future conditions at the site and does not warrant against conditions that were not evident from visual observations or historical information obtained from others.

2.0 ASBESTOS SURVEY:

2.1 INSPECTION SUMMARY

QuES&T performed a Pre-Construction Survey, in conformance with Title 12 NYCRR Part 56-5.1, for SUNY Purchase in support of the CMFT and Passage Gallery Administration Relocation Project at SUNY Purchase Campus, located at 735 Anderson Hill Road, Purchase, NY 10577. The survey included a visual inspection / assessment for Presumed Asbestos-containing Materials (PACM) and suspect miscellaneous Asbestos-containing Materials (ACM) throughout accessible interior and exterior locations to be affected by future renovations, as detailed above. Results and findings from previous inspections conducted by **QuES&T** were not utilized in this inspection.

Limited localized demolition of building surfaces was performed, as part of this survey, to access concealed surfaces. No disassembly of installed equipment was conducted as part of this inspection. ACM concealed within structural components and equipment interiors or that is accessible only through extensive mechanical or structural demolition may not have been identified as part of this survey. When any construction activity, such as demolition, remodeling, renovation or repair work, reveals PACM or suspect miscellaneous ACM that has not been identified, as part of this survey, all construction activities shall cease in the affected area.

The survey included both visual inspection of accessible spaces and representative sampling of suspect building materials for ACM. Samples collected were analyzed by a laboratory approved under the New York State Department of Health Environmental Laboratory Approval Program (NYSDOH ELAP). Samples were analyzed in the laboratory by Polarized Light Microscopy (PLM), Polarized Light Microscopy-NOB (PLM-NOB) and/or Quantitative Transmission Electron Microscopy (QTEM), as required. Sample collection and laboratory analysis were conducted in compliance with the requirements of Title 12 NYCRR Part 56-5.1, 29 CFR 1926.1101 and standard EPA & OSHA accepted methods. Samples consisting of multiple layers were separated and analyzed independently in the laboratory.

2.2 SAMPLE COLLECTION & ANALYTICAL PROCEDURES

Representative bulk sampling was performed on suspect building materials for laboratory analysis using PLM, PLM-NOB, and/or QTEM. The following is a summary of installed building materials sampled:

- Wall Materials – Sheetrock, Joint Compound, Block and Mortar.
- Ceiling Materials – Sheetrock, Joint Compound, Ceiling Tile.
- Flooring Materials – Leveler, Thinset, Carpet Mastic, Slab.
- Thermal System Insulation Materials (TSI) – Mudded Joint Packing, Confirmatory Fiberglass Insulation.
- Miscellaneous Materials – Spray-on Fireproofing, Firestop, Caulk, Expansion Foam.

Certified **QuES&T** personnel (Appendix C), Mr. Todd McAfee (Cert. #AH 12-10881) performed visual assessments throughout interior and exterior construction areas. A total of forty (**40**) samples/layers of installed and accessible suspect building materials were analyzed by a laboratory approved under the NYSDOH ELAP. Thirty (30) samples/layers were analyzed using Polarized Light Microscopy (PLM) for friable materials; ten (10) samples/layers were analyzed using Polarized Light Microscopy (PLM-NOB) for non-friable organically bound materials; and ten (10) samples/layers were analyzed by Confirmatory-QTEM following negative-determinations using PLM-NOB protocols.

2.3 IDENTIFIED ASBESTOS-CONTAINING MATERIALS (ACM)

TABLE I: IDENTIFIED ACM
SUNY PURCHASE – CMFT AND PASSAGE GALLERY
735 Anderson Hill Road
Purchase, NY 10577
(Refer to Appendix A for details)

KEY: ACM = Materials containing greater than 1% of asbestos;
LF = Linear Feet; SF = Square Feet; PACM = Presumed Asbestos-containing Materials;
Friable = ACM capable of being released into air, and which can be crumbled, pulverized, powdered, crushed or exposed by hand-pressure.

Location	Material	Approximate Quantity	Friable?	Condition
INTERIORS				
<i>No Asbestos-Containing Materials identified upon PLM, PLM-NOB and/or QTEM analysis of samples collected in relation to the proposed scope of work.</i>				
EXTERIORS				
<i>No Asbestos-Containing Materials identified upon PLM, PLM-NOB and/or QTEM analysis of samples collected in relation to the proposed scope of work.</i>				
Notes: 1) Access above ceilings was limited in areas due to splined ceilings and hard ceilings. While Spray-on Fireproofing, Pipe Insulation/Fittings and other materials present above ceilings were all non-asbestos where accessible, concealed suspect materials may exist.				

3.0 LEAD SURVEY:

3.1 INSPECTION SUMMARY

QuES&T conducted a Limited Pre-Construction Lead Survey, utilizing X-Ray Fluorescence Technology (XRF), throughout specific interior and exterior areas included in the CMFT and Passage Gallery Administration Relocation Project on the SUNY Purchase Campus, located at 735 Anderson Hill Road, Purchase, NY 105778. The survey was limited to specific accessible, representative building components & immovable objects, potentially affected by scheduled renovation/construction activities.

Niton-certified XRF Technician(s) Todd McAfee of **QuES&T**, collected a total of twenty-five (25) samples (including calibrations) on July 22, 2022.

3.2 IDENTIFIED LEAD-BASED PAINT(S) (LBP)

Based on review of the data generated by the Niton XLp-300A XRF Spectrum Analyzer, the following surfaces tested were identified as lead-based as defined by HUD/EPA (equal to or in excess of 1.0 milligram per square centimeter):

TABLE II: IDENTIFIED LEAD-BASED PAINT
SUNY PURCHASE – CMFT AND PASSAGE GALLERY
735 Anderson Hill Road
Purchase, NY 10577
(CONSTRUCTION AREAS)

Location	LBP Component	Substrate	Color	LBP Condition	Approximate Quantity
Large Storage Room	Doors and Door Casings	Metal	Brown (Multiple)	Intact	120 SF (3 Doorways)

NOTE: Locations and quantities of identified LBP's are limited to areas potentially affected by future renovation activities. Surfaces/components with LBP's may exist in other spaces not included in this scope of work.

It should be noted that several components tested did in fact contain minimal lead-levels below the EPA threshold level of 1.0 mg/sq. cm for classification as Lead-Based Paint (LBP) and are considered lead-containing coatings by the OSHA Regulation, "Lead Exposure in Construction" (29 CFR 1926.62). OSHA does not recognize a minimum limit for lead concentrations in paint for the purposes of disturbance. Monitoring of workers performing demolition/cleaning/disturbance of painted surfaces shall be completed to document personnel occupational exposure. Items containing any amount of lead concentration are considered lead-containing coatings per 29 CFR 1926.62, OSHA Lead Exposure in Construction.

4.0 POLYCHLORINATED BIPHENYL (PCB) SURVEY:

4.1 INSPECTION SUMMARY

QuES&T conducted a Limited Pre-Construction Survey for the presence of PCBs in support of the Construction Project at the CMFT and Passage Gallery for the Administration Relocation Project, located at 735 Anderson Hill Road, Purchase, NY 10577. Sampling was limited to representative, homogenous, exterior caulks potentially affected by renovations as detailed in work scope drawings provided by Clark Patterson Lee.

Mr. Todd McAfee of **QuES&T**, collected a total of one (1) bulk sample on July 22, 2022, consisting of one (1) exterior caulk samples. Bulk samples were properly packaged and forwarded to York Analytical Laboratories, Inc., in Stratford, CT for analysis using method SW846-8082A. Copies of the analytical results are contained within attached appendices for review.

4.2 IDENTIFIED PCBS

A summation of samples collected, and associated results are as follows:

TABLE III: SUMMATION OF COLLECTED PCB CAULK SAMPLES
SUNY PURCHASE – CMFT AND PASSAGE GALLERY

Sample #	Location/Description	Material Matrix	Color	Substrate	Applicable Regulatory Standards (Most Stringent)	Classification Result Upon Lab analysis
4843-01	Exterior, Passage Gallery Curtain Wall, Metal Frame to Masonry Facade	Caulk	Grey	Metal/Brick	USEPA 40 CFR 761	Not Detected at The Reporting Limit (RL) or above.

5.0 RECOMMENDATIONS:

5.1 ASBESTOS

All construction personnel as well as individuals who have access to locations where asbestos containing materials (ACM) exists should be informed of its presence and the proper work practices in these areas. Conspicuous labeling of all ACM is suggested to ensure personnel is adequately informed. Personnel should be informed not to rest, lean or store material or equipment on or near these surfaces and not to cut, saw, drill, sand or disturb ACM. All removal, disturbance, and repair of ACM should be performed in compliance with Title 12 NYCRR Part 56 by persons properly trained to handle ACM. Facility custodial and maintenance personnel should receive training commensurate with their work activities; as defined in 29 CFR 1910.1001.

As specified in Title 12 NYCRR Part 56-5.1 (h) and (i), "If the building/structure asbestos survey finds that the portion of the building/structure to be demolished, renovated, remodeled, or have repair work contains ACM, PACM, suspect miscellaneous ACM assumed to be ACM, or asbestos material, which is impacted by the work, the owner or the owner's agent shall conduct, or cause to have conducted, asbestos removal performed by a licensed asbestos abatement contractor in conformance with all standards set forth in this Part. All ACM, PACM, suspect miscellaneous ACM assumed to be ACM, or asbestos material impacted by the demolition, renovation, remodeling or repair project shall be removed as per this Part, prior to access or disturbance by other uncertified trades or personnel. No demolition, renovation, remodeling or repair work shall be commenced by any owner or the owner's agent prior to the completion of the asbestos abatement in accordance with the notification requirements of this Part...All building/structure owners and asbestos abatement contractors on a demolition, renovation, remodeling, or repair project, which includes work covered by this part, shall inform all trades on the work site about PACM, ACM, asbestos material and suspect miscellaneous ACM...Bids may be advertised and contracts awarded for demolition, remodeling, renovation, or repair work, but no work on the current intermediate portion of the project shall commence on the demolition, renovation, remodeling or repair work by any owner or agent prior to completion of all necessary asbestos abatement work for the current intermediate portion of the entire project, in conformance with all standards set forth in this Part."

Prior to conducting demolition or construction work at the building, all ACM affected/impacted by such activities shall be removed utilizing a licensed asbestos abatement contractor and NYSDOL/EPA/NYC certified personnel prior to construction/demolition activities. All work conducted should be in accordance with all legal requirements, including but not limited to U.S. Environmental Protection Agency (EPA) National Emissions Standards for Hazardous Air Pollutants (NESHAP) [40 CFR Part 61], New York State Industrial Code Rule 56 Asbestos Regulations (ICR 56) and Chapter 1 of Title 15 of the Rules of the City of New York Regulations, as applicable. Advance notification of the asbestos project to the USEPA, NYSDOL, and NYCDEP may be required.

All suspect building materials not sampled during this survey should be considered ACM until these materials are sampled and analyzed for ACM in the laboratory. Concealed ACM: In addition to the ACMs identified at the site, there is a possibility that concealed ACM may exist at the subject facility. As such, if any concealed suspect ACM is encountered during future construction related activities, the work should immediately stop. Prior to resuming the work, the suspect ACM should either be 1) Sampled by an appropriately-certified asbestos professional and submitted to an Approved NYSDOH ELAP laboratory for asbestos analysis or 2) Presumed to be ACM (PACM) and removed by a licensed asbestos abatement contractor for disposal in accordance with all applicable regulations.

5.2 LEAD

In addition to any identified Lead-based Paints (LBP), several components tested did in fact contain minimal lead-levels below the EPA threshold level of 1.0 mg/sq. cm for classification as LBP and are considered lead-containing coatings by the OSHA Regulation, "Lead Exposure in Construction" (29 CFR 1926.62). OSHA does not recognize a minimum limit for lead concentrations in paint for the purposes of disturbance. Monitoring of workers performing demolition/cleaning/disturbance of painted surfaces shall be completed to document personnel occupational exposure. Items containing any amount of lead concentration are considered lead-containing coatings per 29 CFR 1926.62, OSHA Lead Exposure in Construction.

Activities involving the disturbance of LBP in homes, child-occupied facilities, and/or pre-schools built before 1978 must follow the requirements outlined by EPA regulations (40 CFR 745).

In areas where demolition and/or renovations are to occur and lead is present, the demolition debris waste stream should be further analyzed during segregation for compliance with EPA regulations to ensure proper disposal. TCLP testing can be performed prior to waste segregation, but results may not be indicative of the actual waste streams produced during demolition.

5.3 PCB CAULK

Materials are considered to be hazardous if they contain greater than fifty (50) parts per million (ppm) PCBs based on the sum of all Aroclors. All materials containing greater than 50 ppm PCBs potentially impacted by proposed renovations should be abated in accordance with any applicable federal, state, and/or local codes, rules, and regulations.

6.0 DISCLAIMERS

The findings presented in this report are based upon reasonably available information and observed site conditions at the time the assessment was performed. Conditions may have changed since that time and the findings and conclusions of this report are not meant to be indicative of future conditions at the Site. This report does not warrant against conditions that were not evident from visual observations or historical information obtained, or conditions that could only be determined by physical sampling or other intrusive investigation techniques that are outside the proposed scope of work.

It should be noted that the information contained within this report is based solely upon site observations and the results of laboratory analysis for samples collected by **QuES&T**. These observations and results are time dependent, subject to changing site conditions and revisions to Federal, State and Local regulations. **QuES&T** warrants that these findings have been promulgated after being prepared in general accordance with generally accepted practices in the abatement industries. **QuES&T** also recognizes that inspection laboratory data is not usually sufficient to make all abatement and management decisions.

Due to the potential for concealed Asbestos-containing Materials (ACM) or other regulated materials, this report should not be construed to represent all ACM or regulated materials within the site(s). All quantities of ACM or other regulated materials identified, and all dimensions listed within this report are approximate and should be verified On-site.

This inspection report is not intended to be used as the sole basis for soliciting pricing for regulated materials abatement. An abatement plan, specification, drawing and/or Variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project. The Linear and/or Square Footages (LF / SF) listed within this Report are only approximates. Abatement Contractor(s) are required to visit the building(s) in order to take actual field measurements within each listed location.



Quality Environmental Solutions & Technologies, Inc.

Appendix A: ASBESTOS SAMPLE RESULTS



EAS Batch No. 2205782

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 22-4843 - SUNY Purchase - CMFT Admin Relocation Project - Pre-Renovation
Asbestos Survey

Date Collected : 07/22/2022
Collected By : T. McAfee/G. Dean
Date Received : 07/25/2022
Date Analyzed : 08/02/2022
Analyzed By : George Htay
Signature : 
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0
NYS Lab No. 10851

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		4843-01	4843-02	4843-03	4843-04
Layer Number					
Lab ID Number		2847755	2847756	2847757	2847758
Sample Location		Storage Room Near Elevator Lobby, On Metal Beam	Side Storage Room, On Metal Beam	Triangular Storage Room, On Metal Beam	Side Storage Room, Wall
Sample Description		Spray-on Fireproofing	Spray-on Fireproofing	Spray-on Fireproofing	Sheetrock
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	Yes
	Homogenous	No	No	No	No
	Fibrous	Yes	Yes	Yes	Yes
	Color	Gray	Gray	Gray	Gray/Brown/Green
Sample Treatment		Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	35.0	35.0	30.0	5.0
	% Cellulose	ND	ND	ND	15.0
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	5.0	5.0	5.0	15.0
	% Carbonates	25.0	20.0	25.0	30.0
	% Other	ND	ND	ND	ND
	% Unidentified	35.0	40.0	40.0	35.0

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. ND = Not Detected. Reporting Limit is <1%.
Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government.
These Results Can Not Be Used To Claim That NOB Items Tested Are Non-Asbestos Containing. Overall Lab Accuracy ± 17%. Samples received in acceptable condition unless otherwise noted.
AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

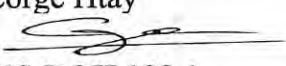


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Analyzed By : George Htay
Signature : 
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0
NYS Lab No. 10851

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		4843-05	4843-06	4843-07	4843-08
Layer Number					
Lab ID Number		2847759	2847760	2847761	2847762
Sample Location		Triangular Storage Room, Wall	Main Room, Wall, On Sheetrock	Main Room, Wall, On Sheetrock	Main Room, Wall, On Sheetrock
Sample Description		Sheetrock	Joint Compound	Joint Compound	Joint Compound
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	Yes	No	No	Yes
	Homogenous	No	Yes	Yes	No
	Fibrous	Yes	No	No	No
	Color	Gray/Brown/Green	White	White	White
Sample Treatment		Homogenized	None	None	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	5.0	ND	ND	ND
	% Cellulose	10.0	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	15.0	30.0	30.0	25.0
	% Carbonates	30.0	30.0	30.0	30.0
	% Other	ND	ND	ND	ND
	% Unidentified	40.0	40.0	40.0	45.0

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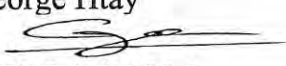


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Analyzed By : George Htay
Signature : 
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0
NYS Lab No. 10851

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number	4843-09	4843-10	4843-11	4843-12
Layer Number				
Lab ID Number	2847763	2847764	2847765	2847766
Sample Location	Main Room, Wall, On Sheetrock	Main Room, Wall, On Sheetrock	Main Room, Wall, On Sheetrock	Main Room, Wall, On Sheetrock
Sample Description	Joint Compound	Joint Compound	Joint Compound	Joint Compound
Method of Quantification	Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered Homogenous Fibrous Color	No Yes No White	No Yes No White	Yes No No White
Sample Treatment	None	None	Homogenized	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	ND ND ND ND	ND ND ND ND	ND ND ND ND
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	ND ND ND ND	ND ND ND ND	ND ND ND ND
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	30.0 30.0 ND 40.0	30.0 30.0 ND 40.0	25.0 35.0 ND 40.0

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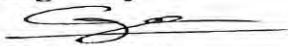


EAS Batch No. 2205782

Eastern Analytical Services, Inc.

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Date Received : 07/25/2022
Date Analyzed : 08/02/2022
Analyzed By : George Htay
Signature : 
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0
NYS Lab No. 10851

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number	4843-13	4843-14	4843-15	4843-16
Layer Number				
Lab ID Number	2847767	2847768	2847769	2847770
Sample Location	Passage Gallery, Ceiling, On Sheetrock	Passage Gallery, Wall, On Sheetrock	Mechanical Room, On Metal Pipe Elbow	Mechanical Room, On Valve
Sample Description	Joint Compound	Joint Compound	Mudded Joint Packing	Mudded Joint Packing
Method of Quantification	Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered Homogenous Fibrous Color	Yes No No White/Gray	No No Yes Gray	No No Yes Gray/Rust
Sample Treatment	Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	ND ND ND ND	ND ND ND ND	ND ND ND ND
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	ND ND ND ND	30.0 ND ND ND	25.0 ND ND ND
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	25.0 30.0 ND 45.0	30.0 20.0 ND 30.0	25.0 20.0 ND 30.0

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EAS Batch No. 2205782

Eastern Analytical Services, Inc.

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Analyzed By : George Htay
Signature : 
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0
NYS Lab No. 10851

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number	4843-17	4843-22	4843-23	4843-26
Layer Number				
Lab ID Number	2847771	2847772	2847773	2847774
Sample Location	Hallway Outside Office 0411, On Metal Pipe Elbow	Room 0411, Floor, Under Carpet	Room 0411, Floor, Under Carpet	Elevator Lobby, Floor
Sample Description	Mudded Joint Packing	Thinset	Thinset	Leveler
Method of Quantification	Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered Homogenous Fibrous Color	No No Yes Gray/Brown	Yes No No White/Brown	No Yes No Gray
Sample Treatment	Homogenized	Homogenized	Homogenized	None
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	ND ND ND ND	ND ND ND ND	ND ND ND ND
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	20.0 10.0 ND ND	ND ND ND ND	ND ND ND ND
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	25.0 15.0 ND 30.0	20.0 35.0 ND 45.0	15.0 35.0 ND 50.0
				10.0 40.0 ND 50.0

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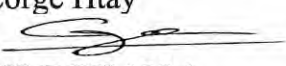


EAS Batch No. 2205782

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Signature : 
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0
NYS Lab No. 10851

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number	4843-27	4843-30	4843-31	4843-32
Layer Number				
Lab ID Number	2847775	2847776	2847777	2847778
Sample Location	Elevator Lobby, Floor	Side Storage, Wall	Side Storage, Floor	Side Storage, Floor
Sample Description	Leveler	Fiberglass Insulation	Concrete Slab	Concrete Slab
Method of Quantification	Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered Homogenous Fibrous Color	No Yes Yes Pink	No No No Gray/Brown	No No No Gray/Brown
Sample Treatment	None	None	Homogenized	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	ND ND ND ND	ND ND ND ND	ND ND ND ND
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	ND ND ND ND	ND ND ND ND	ND ND ND ND
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	10.0 40.0 ND 50.0	5.0 ND ND 15.0	30.0 35.0 ND 35.0
				25.0 35.0 ND 40.0

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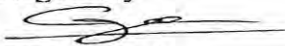


EAS Batch No. 2205782

Eastern Analytical Services, Inc.

Bulk Sample Results

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Asbestos Survey

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Signature : 
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0
NYS Lab No. 10851

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number	4843-35	4843-35	4843-36	4843-36
Layer Number	1	2	1	2
Lab ID Number	2847779	2847779	2847780	2847780
Sample Location	Storage Room, Wall	Storage Room, Wall	Storage Room, Wall	Storage Room, Wall
Sample Description	Block and Mortar (Block Layer)	Block and Mortar (Mortar Layer)	Block and Mortar (Block Layer)	Block and Mortar (Mortar Layer)
Method of Quantification	Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered Homogenous Fibrous Color	No No No Gray	Yes No No Brown/White	No No No Gray
Sample Treatment	Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	ND ND ND ND	ND ND ND ND	ND ND ND ND
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	ND ND ND ND	ND ND ND ND	ND ND ND ND
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	20.0 30.0 ND 50.0	35.0 25.0 ND 40.0	25.0 30.0 ND 45.0

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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936



EAS Batch No. 2205783

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 22-4843 - SUNY Purchase - CMFT Admin Relocation Project - Pre-Renovation
Asbestos Survey

Date Collected : 07/22/2022

Collected By : T. McAfee/G. Dean

Date Received : 07/25/2022

Date Analyzed : 08/02/2022

Analyzed By : George Htay

Signature : 

Analytical Method : NYS-DOH 198.6

NVLAP Lab No. 101646-0

NVLAP Lab Code : 10851

Client

QuES&T, Inc.

1376 Route 9

Wappingers Falls, NY 12590

Sample ID Number		4843-18	4843-19	4843-20	4843-21
Layer Number					
Lab ID Number		2846362	2846363	2846364	2846365
Sample Location		Hallway Outside Office 0411, Splined Ceiling, 1' x 1'	Hallway Outside Office 0411, Splined Ceiling, 1' x 1'	Storage Room, At Pipe Penetration to CMU Wall	Storage Room, At Pipe Penetration to CMU Wall
Sample Description		Ceiling Tile	Ceiling Tile	Firestop	Firestop
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	Yes	Yes	No	No
	Homogenous	No	No	Yes	Yes
	Fibrous	Yes	Yes	No	No
	Color	Gray/White	Gray/White	Brown/Pink	Brown/Pink
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	ND Inconclusive	ND Inconclusive	ND Inconclusive
Other Materials Present	% Organic	10.8	11.0	42.0	42.3
	% Carbonates	22.0	32.7	24.8	23.0
	% Other Inorganic	67.2	56.3	33.2	34.7

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. Samples received in acceptable condition unless otherwise noted. ND = Not Detected. Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government. These Results Cannot Be Used To Claim That NOB Items Tested Are Non-Asbestos Containing (Unless "% Other Inorganic", As Reported Above, Is Less Than One Percent). This method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing greater than 10% vermiculite. AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936



EAS Batch No. 2205783

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 22-4843 - SUNY Purchase - CMFT Admin Relocation Project - Pre-Renovation
Asbestos Survey

Date Collected : 07/22/2022

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Analyzed By : George Htay

Signature : 

Analytical Method : NYS-DOH 198.6

NVLAP Lab No. 101646-0

NVLAP Lab Code : 10851

Client

QuES&T, Inc.

1376 Route 9

Wappingers Falls, NY 12590

Sample ID Number		4843-24	4843-25	4843-28	4843-29
Layer Number					
Lab ID Number		2846366	2846367	2846368	2846369
Sample Location		Room 0411, Floor, Under Carpet	Room 0411, Floor, Under Carpet	Electric Closet, Between Walls	Electric Closet, Between Walls
Sample Description		Carpet Mastic	Carpet Mastic	Expansion Foam	Expansion Foam
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	Yes	Yes
	Color	Tan	Tan	Black	Black
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	ND Inconclusive	ND Inconclusive	ND Inconclusive
Other Materials Present	% Organic	33.2	51.0	41.4	47.2
	% Carbonates	22.3	8.9	45.8	41.2
	% Other Inorganic	44.5	40.1	12.8	11.6

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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936



EAS Batch No. 2205783

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 22-4843 - SUNY Purchase - CMFT Admin Relocation Project - Pre-Renovation
Asbestos Survey

Date Collected : 07/22/2022
Collected By : T. McAfee/G. Dean
Date Received : 07/25/2022
Date Analyzed : 08/02/2022
Analyzed By : George Htay
Signature : 
Analytical Method : NYS-DOH 198.6
NVLAP Lab No. 101646-0
NVLAP Lab Code : 10851

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		4843-33	4843-34	4843-37	4843-38
Layer Number					
Lab ID Number		2846370	2846371	2846372	2846373
Sample Location		Main Room, Wall	Main Room, Wall	Exterior, Passage Gallery Window Wall, At Expansion Joint	Exterior, Passage Gallery Window Wall, At Expansion Joint
Sample Description		Caulk	Caulk	Caulk	Caulk
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	No	Yes	Yes
	Homogenous	Yes	Yes	No	No
	Fibrous	No	No	No	No
	Color	White	White	Gray/Black	Gray/Black
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	ND Inconclusive	ND Inconclusive	ND Inconclusive
Other Materials Present	% Organic	46.2	45.2	49.7	49.6
	% Carbonates	51.2	52.8	24.5	24.4
	% Other Inorganic	2.6	2.0	25.8	26.0

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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936



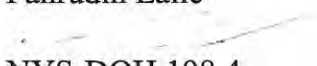
EAS Batch No. 2205784

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 22-4843 - SUNY Purchase - CMFT Admin Relocation Project - Pre-Renovation
Asbestos Survey

Date Collected :
Collected By :
Date Received :
Date Analyzed :
Analyzed By :
Signature :
Analytical Method :
NVLAP Lab Code :
NYS Lab No.

07/22/2022
T. McAfee/G. Dean
07/25/2022
08/03/2022
Fahrudin Lalic

NYS-DOH 198.4
101646-0
10851

Client

QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		4843-18	4843-19	4843-20	4843-21
Layer Number					
Lab ID Number		2846362	2846363	2846364	2846365
Sample Location		Hallway Outside Office 0411, Splined Ceiling, 1' x 1'	Hallway Outside Office 0411, Splined Ceiling, 1' x 1'	Storage Room, At Pipe Penetration to CMU Wall	Storage Room, At Pipe Penetration to CMU Wall
Sample Description		Ceiling Tile	Ceiling Tile	Firestop	Firestop
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	Yes	Yes	No	No
	Homogenous	No	No	Yes	Yes
	Fibrous	Yes	Yes	No	No
	Color	Gray/White	Gray/White	Brown/Pink	Brown/Pink
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Materials Present	% Organic	10.8	11.0	42.0	42.3
	% Carbonates	22.0	32.7	24.8	23.0
	% Other Inorganic	67.2	56.3	33.2	34.7

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EAS Batch No. 2205784

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 22-4843 - SUNY Purchase - CMFT Admin Relocation Project - Pre-Renovation
Asbestos Survey

Date Collected : 07/22/2022
Collected By : T. McAfee/G. Dean
Date Received : 07/25/2022
Date Analyzed : 08/03/2022
Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0
NYS Lab No. 10851

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		4843-24	4843-25	4843-28	4843-29
Layer Number					
Lab ID Number		2846366	2846367	2846368	2846369
Sample Location		Room 0411, Floor, Under Carpet	Room 0411, Floor, Under Carpet	Electric Closet, Between Walls	Electric Closet, Between Walls
Sample Description		Carpet Mastic	Carpet Mastic	Expansion Foam	Expansion Foam
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	Yes	Yes
	Color	Tan	Tan	Black	Black
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Materials Present	% Organic	33.2	51.0	41.4	47.2
	% Carbonates	22.3	8.9	45.8	41.2
	% Other Inorganic	44.5	40.1	12.8	11.6

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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936



EAS Batch No. 2205784

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 22-4843 - SUNY Purchase - CMFT Admin Relocation Project - Pre-Renovation
Asbestos Survey

Date Collected :
Collected By :
Date Received :
Date Analyzed :
Analyzed By :
Signature :
Analytical Method :
NVLAP Lab Code :
NYS Lab No.

07/22/2022
T. McAfee/G. Dean
07/25/2022
08/03/2022
Fahrudin Lalic

NYS-DOH 198.4
101646-0
10851

Client

QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		4843-33	4843-34	4843-37	4843-38
Layer Number					
Lab ID Number		2846370	2846371	2846372	2846373
Sample Location		Main Room, Wall	Main Room, Wall	Exterior, Passage Gallery Window Wall, At Expansion Joint	Exterior, Passage Gallery Window Wall, At Expansion Joint
Sample Description		Caulk	Caulk	Caulk	Caulk
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	No	No	Yes	Yes
	Homogenous	Yes	Yes	No	No
	Fibrous	No	No	No	No
	Color	White	White	Gray/Black	Gray/Black
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Materials Present	% Organic	46.2	45.2	49.7	49.6
	% Carbonates	51.2	52.8	24.5	24.4
	% Other Inorganic	2.6	2.0	25.8	26.0

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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936



Quality Environmental Solutions & Technologies, Inc.

Appendix B: XRF ANALYTICAL DATA

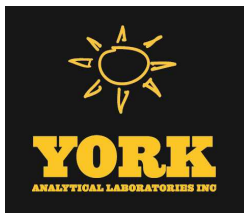
Limited XRF Lead Survey

A	B	C	D	E	F	G	H	I	J	K	L	M
Sample	Building/Address	Interior/Exterior	Floor	Space/Room/Description	Object	Component	Substrate	Color	Condition	Result	Pb Concentration (mg/cm2)	Pb Error (mg/cm2)
1										Negative	0	0.02
2										Positive	1.1	0.1
3	1 NIST (<0.01)											
4	2 NIST (1.04 +/- 0.06)											
5	3 CMFT and Passage Gallery	Interior	Concourse	Main Lobby	Wall		Sheetrock	White	Intact	Negative	0	0.02
6	4 CMFT and Passage Gallery	Interior	Concourse	Main Lobby	Wall		Sheetrock	White	Intact	Negative	0	0.02
7	5 CMFT and Passage Gallery	Interior	Concourse	Main Lobby	Door		Metal	White	Intact	Negative	0	0.02
8	6 CMFT and Passage Gallery	Interior	Concourse	Main Lobby	Door	Casing	Metal	White	Intact	Negative	0	0.02
9	7 CMFT and Passage Gallery	Interior	Concourse	Main Lobby	Column		Sheetrock	White	Intact	Negative	0	0.02
10	8 CMFT and Passage Gallery	Interior	Concourse	Large Storage Room	Door		Metal	Brown	Intact	Positive	3.1	1.8
11	9 CMFT and Passage Gallery	Interior	Concourse	Large Storage Room	Door	Casing	Metal	Brown	Intact	Positive	2.7	1.6
12	10 CMFT and Passage Gallery	Interior	Concourse	Large Storage Room	Wall		Cement Block	White	Intact	Negative	0	0.02
13	11 CMFT and Passage Gallery	Interior	Concourse	Large Storage Room	Wall		Cement Block	White	Intact	Negative	0	0.02
14	12 CMFT and Passage Gallery	Interior	Concourse	Electrical Room	Door		Metal	Brown	Intact	Negative	0.17	0.17
15	13 CMFT and Passage Gallery	Interior	Concourse	Electrical Room	Door	Casing	Metal	Brown	Intact	Negative	0.16	0.16
16	14 CMFT and Passage Gallery	Interior	Concourse	Electrical Room	Door		Metal	White	Intact	Negative	0.01	0.04
17	15 CMFT and Passage Gallery	Interior	Concourse	Electrical Room	Door	Casing	Metal	White	Intact	Negative	0.01	0.03
18	16 CMFT and Passage Gallery	Interior	Concourse	Passage Gallery	Wall		Sheetrock	White	Intact	Negative	0	0.02
19	17 CMFT and Passage Gallery	Interior	Concourse	Passage Gallery	Ceiling		Sheetrock	Black	Intact	Negative	0	0.02
20	18 CMFT and Passage Gallery	Interior	Concourse	Passage Gallery	Wall		Brick	Natural	Intact	Negative	0	0.02
21	19 CMFT and Passage Gallery	Interior	Concourse	Office 0411	Wall		Cement Block	White	Intact	Negative	0	0.02
22	20 CMFT and Passage Gallery	Interior	Concourse	Office 0411	Door		Metal	Green	Intact	Negative	0.02	0.03
23	21 CMFT and Passage Gallery	Interior	Concourse	Office 0411	Door	Casing	Metal	Green	Intact	Negative	0.03	0.04
24	22 CMFT and Passage Gallery	Interior	Concourse	Mechanical Room	Door		Metal	White	Intact	Negative	0	0.02
25	23 CMFT and Passage Gallery	Interior	Concourse	Mechanical Room	Door	Casing	Metal	White	Intact	Negative	0.01	0.06
26	24 NIST (<0.01)									Negative	0	0.02
27	25 NIST (1.04 +/- 0.06)									Positive	1.1	0.1



Quality Environmental Solutions & Technologies, Inc.

Appendix C: PCB ANALYTICAL DATA



Technical Report

prepared for:

QuES & T
1376 Rt. 9
Wappingers Falls NY, 12590
Attention: Todd McAfee

Report Date: 08/01/2022
Client Project ID: 22-4843 CMFT Admin Relocation
York Project (SDG) No.: 22G1074

CT Cert. No. PH-0723

New Jersey Cert. No. CT005 and NY037



New York Cert. Nos. 10854 and 12058

PA Cert. No. 68-04440

120 RESEARCH DRIVE
www.YORKLAB.com

STRATFORD, CT 06615
(203) 325-1371



132-02 89th AVENUE
FAX (203) 357-0166

RICHMOND HILL, NY 11418
ClientServices@yorklab.com

Report Date: 08/01/2022
Client Project ID: 22-4843 CMFT Admin Relocation
York Project (SDG) No.: 22G1074

QuES & T
1376 Rt. 9
Wappingers Falls NY, 12590
Attention: Todd McAfee

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on July 25, 2022 and listed below. The project was identified as your project: **22-4843 CMFT Admin Relocation**.

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Sample and Analysis Qualifiers section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the Sample and Data Qualifiers Relating to This Work Order section of this report and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

<u>York Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>
22G1074-01	'CB-01 Passage Gallery Window, Frame to Brick I	Caulk	07/22/2022	07/25/2022

General Notes for York Project (SDG) No.: 22G1074

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All analyses conducted met method or Laboratory SOP requirements. See the Sample and Data Qualifiers Section for further information.
6. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
7. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.
8. Analyses conducted at York Analytical Laboratories, Inc. Stratford, CT are indicated by NY Cert. No. 10854; those conducted at York Analytical Laboratories, Inc., Richmond Hill, NY are indicated by NY Cert. No. 12058.

Approved By:



Cassie L. Mosher
Laboratory Manager

Date: 08/01/2022





Sample Information

Client Sample ID: 4843-PCB-01 Passage Gallery Window, Frame to Brick Facade

York Sample ID: 22G1074-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

22G1074

22-4843 CMFT Admin Relocation

Caulk

July 22, 2022 3:00 pm

07/25/2022

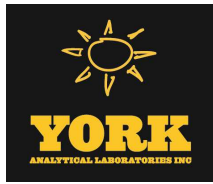
Polychlorinated Biphenyls (PCB)

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
12674-11-2	Aroclor 1016	ND		mg/kg	0.410	1	EPA 8082A Certifications: NELAC-NY10854,CTDOH,NJDEP	07/29/2022 13:06	08/01/2022 14:40	BJ
11104-28-2	Aroclor 1221	ND		mg/kg	0.410	1	EPA 8082A Certifications: NELAC-NY10854,CTDOH,NJDEP	07/29/2022 13:06	08/01/2022 14:40	BJ
11141-16-5	Aroclor 1232	ND		mg/kg	0.410	1	EPA 8082A Certifications: NELAC-NY10854,CTDOH,NJDEP	07/29/2022 13:06	08/01/2022 14:40	BJ
53469-21-9	Aroclor 1242	ND		mg/kg	0.410	1	EPA 8082A Certifications: NELAC-NY10854,CTDOH,NJDEP	07/29/2022 13:06	08/01/2022 14:40	BJ
12672-29-6	Aroclor 1248	ND		mg/kg	0.410	1	EPA 8082A Certifications: NELAC-NY10854,CTDOH,NJDEP	07/29/2022 13:06	08/01/2022 14:40	BJ
11097-69-1	Aroclor 1254	1.07		mg/kg	0.410	1	EPA 8082A Certifications: NELAC-NY10854,CTDOH,NJDEP	07/29/2022 13:06	08/01/2022 14:40	BJ
11096-82-5	Aroclor 1260	ND		mg/kg	0.410	1	EPA 8082A Certifications: NELAC-NY10854,CTDOH,NJDEP	07/29/2022 13:06	08/01/2022 14:40	BJ
1336-36-3	* Total PCBs	1.07		mg/kg	0.410	1	EPA 8082A Certifications:	07/29/2022 13:06	08/01/2022 14:40	BJ
Surrogate Recoveries		Result	Acceptance Range							
877-09-8	Surrogate: Tetrachloro-m-xylene	94.5 %	30-140							
2051-24-3	Surrogate: Decachlorobiphenyl	100 %	30-140							



Analytical Batch Summary

Batch ID: BG21645

Preparation Method: EPA 3550C

Prepared By: VS

YORK Sample ID	Client Sample ID	Preparation Date
22G1074-01	4843-PCB-01 Passage Gallery ¹	07/29/22
BG21645-BLK1	Blank	07/29/22
BG21645-BS1	LCS	07/29/22
BG21645-BSD1	LCS Dup	07/29/22



Polychlorinated Biphenyls by GC/ECD - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BG21645 - EPA 3550C

Blank (BG21645-BLK1)

Prepared: 07/29/2022 Analyzed: 08/01/2022

Aroclor 1016	ND	0.455	mg/kg								
Aroclor 1221	ND	0.455	"								
Aroclor 1232	ND	0.455	"								
Aroclor 1242	ND	0.455	"								
Aroclor 1248	ND	0.455	"								
Aroclor 1254	ND	0.455	"								
Aroclor 1260	ND	0.455	"								
Total PCBs	ND	0.455	"								
Surrogate: Tetrachloro-m-xylene	1.75		"	1.82		96.5	30-140				
Surrogate: Decachlorobiphenyl	1.79		"	1.82		98.5	30-140				

LCS (BG21645-BS1)

Prepared: 07/29/2022 Analyzed: 08/01/2022

Aroclor 1016	8.21	0.455	mg/kg	9.09		90.3	40-130				
Aroclor 1260	9.82	0.455	"	9.09		108	40-130				
Surrogate: Tetrachloro-m-xylene	1.71		"	1.82		94.0	30-140				
Surrogate: Decachlorobiphenyl	2.00		"	1.82		110	30-140				

LCS Dup (BG21645-BSD1)

Prepared: 07/29/2022 Analyzed: 08/01/2022

Aroclor 1016	8.32	0.455	mg/kg	9.09		91.5	40-130	1.39	25		
Aroclor 1260	9.82	0.455	"	9.09		108	40-130	0.0741	25		
Surrogate: Tetrachloro-m-xylene	1.76		"	1.82		97.0	30-140				
Surrogate: Decachlorobiphenyl	2.14		"	1.82		118	30-140				

Batch Y2H0147 - BG21531

Aroclor Reference (Y2H0147-ARC1)

Prepared & Analyzed: 08/01/2022

Surrogate: Tetrachloro-m-xylene	0.206		ug/mL	0.200		103					
Surrogate: Decachlorobiphenyl	0.202		"	0.200		101					



Sample and Data Qualifiers Relating to This Work Order

Definitions and Other Explanations

*	Analyte is not certified or the state of the samples origination does not offer certification for the Analyte.
ND	NOT DETECTED - the analyte is not detected at the Reported to level (LOQ/RL or LOD/MDL)
RL	REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.
LOQ	LIMIT OF QUANTITATION - the minimum concentration of a target analyte that can be reported within a specified degree of confidence. This is the lowest point in an analyte calibration curve that has been subjected to all steps of the processing/analysis and verified to meet defined criteria. This is based upon NELAC 2009 Standards and applies to all analyses.
LOD	LIMIT OF DETECTION - a verified estimate of the minimum concentration of a substance in a given matrix that an analytical process can reliably detect. This is based upon NELAC 2009 Standards and applies to all analyses conducted under the auspices of EPA SW-846.
MDL	METHOD DETECTION LIMIT - a statistically derived estimate of the minimum amount of a substance an analytical system can reliably detect with a 99% confidence that the concentration of the substance is greater than zero. This is based upon 40 CFR Part 136 Appendix B and applies only to EPA 600 and 200 series methods.
Reported to	This indicates that the data for a particular analysis is reported to either the LOD/MDL, or the LOQ/RL. In cases where the "Reported to" is located above the LOD/MDL, any value between this and the LOQ represents an estimated value which is "J" flagged accordingly. This applies to volatile and semi-volatile target compounds only.
NR	Not reported
RPD	Relative Percent Difference
Wet	The data has been reported on an as-received (wet weight) basis
Low Bias	Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
High Bias	High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
Non-Dir.	Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.

Semi-Volatile and Volatile analyses are reported down to the LOD/MDL, with values between the LOD/MDL and the LOQ being "J" flagged as estimated results.

For analyses by EPA SW-846-8270D, the Limit of Quantitation (LOQ) reported for benzidine is based upon the lowest standard used for calibration and is not a verified LOQ due to this compound's propensity for oxidative losses during extraction/concentration procedures and non-reproducible chromatographic performance.

BULK SAMPLE FORM**York Analytical Laboratories, Inc.**

120 Research Drive
Stratford, CT 06615
ph. (203) 325-1371
fx. (203) 357-0166

Field Chain-of-Custody Record

Red Chain York 7-25-22 8:00
Red Chain York 7-25-22 1455 3-00
lab: 7/25/22
1955

Company: **QuES&T****1376 Route 9****Wappingers Falls, NY 12590**Sampled By (Print): **Todd McAfee**Sampled By (Sign.): *[Signature]*Results Send Via: **tmcafee@qualityenv.com**Project #: **22-4843**Invoice to: **Angela Holzapfel (QuES&T)**Project ID: **CMFT Admin Relocation**

SAMPLE #	LOCATION	SAMPLE DATE	MATRIX	ANALYSIS REQUESTED	CONTAINER
4843-PCB-01	Passage Gallery Window, Frame to Brick Façade	7/22/2022	Caulk (Grey)	PCB	Glass 4 oz

ANALYSIS TURNAROUND: 5-Day Turn-Around

PAGE 1 OF 1



Quality Environmental Solutions & Technologies, Inc.

Appendix D: PERSONNEL LICENSES & CERTIFICATIONS

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER



Expires 12:01 AM April 01, 2023
Issued April 01, 2022

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. PAUL STASCAVAGE
EAS INC - EASTERN ANALYTICAL SERVICES INC
4 WESTCHESTER PLAZA
ELMSFORD, NY 10523-1610

NY Lab Id No: 10851

*is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:*

Miscellaneous

Asbestos in Friable Material	Item 198.1 of Manual EPA 600/M4/82/020
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)
Asbestos in Non-Friable Material-TEM	Item 198.4 of Manual
Asbestos-Vermiculite-Containing Material	Item 198.8 of Manual
Lead in Dust Wipes	EPA 7000B
Lead in Paint	EPA 7000B

Sample Preparation Methods

EPA 3050B

Serial No.: 64479

Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify the laboratory's accreditation status.



NEW YORK STATE

MINORITY- AND WOMEN-OWNED BUSINESS ENTERPRISE ("MWBE")

CERTIFICATION

Empire State Development's Division of Minority and Women's Business Development grants a

Women Business Enterprise (WBE)

pursuant to New York State Executive Law, Article 15-A to:

Quality Environmental Solutions & Technologies Inc.

Certification Awarded on: March 28, 2019
Expiration Date: March 28, 2024
File ID#: WBE- 49952



New York State – Department of Labor

Division of Safety and Health
License and Certificate Unit
State Campus, Building 12
Albany, NY 12240

ASBESTOS HANDLING LICENSE

Quality Environmental Solutions & Technologies, Inc.

1376 Route 9

Wappinger Falls, NY 12590

FILE NUMBER: 99-0018

LICENSE NUMBER: 29085

LICENSE CLASS: RESTRICTED

DATE OF ISSUE: 01/21/2022

EXPIRATION DATE: 01/31/2023

Duly Authorized Representative – Lawrence J Holzapfel:

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.



Amy Phillips, Director
For the Commissioner of Labor

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE

N.Y.S.



TODD J MCAFEE

CLASS(EXPIRES)

C ATEC(12/22) D INSP(12/22)

E MGPL(12/22) H PM (12/22)

I PD (12/22)

CERT# 12-10881

DMV# 238089839

MUST BE CARRIED ON ASBESTOS PROJECTS



01213 006208373 83

EYES BLU

HAIR BRO

HGT 5' 08"

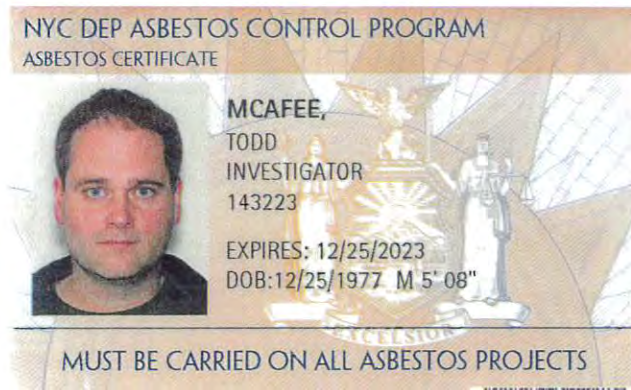
IF FOUND RETURN TO:

NYSOL - L&C UNIT

ROOM 161A BUILDING 12

STATE OFFICE CAMPUS

ALBANY NY 12240



DMV ID: 238089839

This certificate must be shown to a
NYCDEP representative upon request.
Report loss immediately to NYCDEP
Asbestos Control Program, 8th floor
59-17 Junction Blvd., Flushing, NY 11373



01213 004914512 15

United States Environmental Protection Agency

This is to certify that



Todd J McAfee

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires April 17, 2024

LBP-R-1151913-2

Certification #

March 19, 2021

Issued On



A handwritten signature in black ink, appearing to read "Ben Conetta".

Ben Conetta, Chief

Chemicals and Multimedia Programs Branch

United States Environmental Protection Agency

This is to certify that



Todd J McAfee

Inspector

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires April 17, 2024

LBP-I-1151913-2

Certification #

March 19, 2021

Issued On



Ben Conetta, Chief

Chemicals and Multimedia Programs Branch

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE



GREGORY D DEAN

CLASS(EXPIRES)

C ATEC(07/22) D INSP(07/23)

H PM (07/22) I PD (07/23)

CERT# 10-10947

DMV# 223747529

MUST BE CARRIED ON ASBESTOS PROJECTS



01213 006451498 71

EYES GRN

HAIR BRO

HGT 6' 00"

IF FOUND RETURN TO:

NYSDEL - L&C UNIT

ROOM 161A BUILDING 12

STATE OFFICE CAMPUS

ALBANY NY 12240

SECTION 033000

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 CONTRACT DOCUMENTS

- A. Comply with Contract Documents: All Work of this Section shall comply with the requirements of the Conditions of the Contract (General, Supplementary and Special), with all Sections of Division 1 - General Requirements, with this Section of the Specifications, with the Drawings and with all other Contract Documents.
- B. Flammable Materials or materials not conforming in all respects to the fire resistive and fire safety provisions of governing regulations shall not be left in place in the Work.
- C. Disposition of and Exposure to Materials: Contractor remains fully responsible for the disposition and the exposure to persons of all materials, whether or not hazardous.
- D. Volatile Organic Compounds (VOC): Contractor remains fully responsible for the supplying of products and materials complying to the VOC limitations set forth by the Building Code and by governing agencies having jurisdiction.
- E. Metrication: For convenience of Contractor, S.I. units are provided in this Specification. In the event of conflict between the basic unit and the S.I. unit, the basic unit shall prevail.

1.2 WORK INCLUDED

- A. Scope: Contractor shall examine all of the Contract Documents for the extent of the Work of this Section of the Specifications. That Work shall include all labor, materials, devices, plants, tools, equipment, appliances and services necessary to complete the Work as shown in the Drawings, as specified herein, as required by job conditions, and as required by governing authorities having jurisdiction, including but not limited to the following:
 - 1. Designing and testing of concrete mixes. Designing of concrete mixes shall be by Contractor's Professional Engineer licensed in the project's jurisdiction.
 - 2. Submission of Shop Drawings, supporting data, mill certificates and the like.
 - 3. Furnishing, fabricating and placing of all reinforcing bars, mesh, field-applied concrete anchors, metal and plastic accessories, spacers and the like.
 - 4. Cooperation in the making of concrete testing samples, in inspecting reinforcing steel and in all other activities related to Work of this Section.
 - 5. Footings, pile caps, grade beams, pedestals, piers, walls, pilasters, columns, pits and the like.
 - 6. Porous fill and vapor barrier under slabs on ground.
 - 7. Slabs at ground, bearing and or spanning, including stairs and equipment bases and the like.
 - 8. Built-up slabs, bearing on fill.
 - 9. Encasement of electrical conduits, ducts and the like.
 - 10. Waterstops and keys in construction joints.
 - 11. Boxed openings, beam pockets, seats, corbels and shelves.

12. Grouting and concrete encasement of beam and column base plates and of grillages.
13. Concrete structure, including beams, columns, walls, slabs and parapets/curbs to thickness, depth and width indicated in Structural or in Architectural Drawings.
14. Concrete for slabs on composite metal deck.
15. Concrete stairs, steps, landings and platforms, including abrasive finish for exterior treads and platforms.
16. Concrete bases, pedestals, cradles, pads, platforms and the like for mechanical, electrical, elevator and similar equipment.
17. Concrete bases and "housekeeping" pads, and isolation slabs.
18. Concrete fills and topping slabs, where shown in Architectural or Structural Drawings.
19. Grouting, setting and building-in of embedded items provided under other Sections of this Specification.
20. Providing expansion, control and construction joints in concrete Work including the surface preparation and application of bonding compound where specified.
21. Forming and bracing of concrete Work, including both shoring of formwork and concrete, and the subsequent removal of formwork, bracing and the like. Design of formwork shall be by Contractor's Professional Engineer licensed in the project's jurisdiction.
22. Formwork for pockets, chases, slots, reglets, depressions and openings in concrete Work required for the installation of Work specified under other Sections of this Specification.
23. Plugging and finishing of form tie holes, where specified.
24. Filling, patching and rubbing concrete exposed to view in finished Work.
25. Finishing, curing, and protection of all concrete Work, including both hot and cold weather protection of concrete Work.
26. Hardening and dustproofing of exposed, interior concrete floors, platforms, stairs, landings and the like, including surfaces to receive carpeting and other finishes.
27. Cleaning of concrete exposed to view and where required to receive other materials.
28. Shoring of structural steel beams where required by the Contract Documents and where needed to minimize the concrete volume. See Section 05 10 00 for shoring requirements not given in the Drawings or in this Section of the Specifications.
29. No-fines (porous) concrete.
30. Reinforced concrete fireproofing with related anchors and reinforcement, of structural steel columns, beams, girders and the like at all locations where structural steel is shown to be fireproofed with concrete.
31. Plugging and sealing of holes potentially or actually subject to hydrostatic pressure. Exterior walls below grade shall be plugged and sealed.
32. Provisions for other Work.
33. Cooperate with Owner, with Construction Manager, with Architect and with Testing Agency in all aspects of quality assurance and in all other activities related to the work of this Section.

34. The safe handling and disposition of materials related to the Work of this Section, whether or not hazardous.
 35. All other labor, materials and Work given in the Drawings, specified herein or required to make the Work complete.
- B. Work Installed as Specified Elsewhere: Contractor shall examine all of the Contract Documents for the extent of Work to be installed under this Section. Such work shall include, but shall not be limited to:
1. Anchor bolts, embedded plates, anchors, inserts, clips, field-applied concrete anchors and other embedded materials for structural steel and for miscellaneous metals.
 2. Anchor bolts, isolators, jack-up devices and inserts for equipment pads and isolation slabs.
 3. Anchor bolts, inserts and other embedded items for walls, partitions, window, curtain wall, veneers and the like.
 4. Angle edging, corner guards, curb edging and the like at platforms, pits, and the like.
 5. Inserts for attachments of hangers for ceiling support system.
 6. Inserts and other devices for the support of ductwork, piping and the like.
 7. Provision for and cooperation with utility companies and with the work of other trades for the passage through concrete Work of gas, oil, storm, sewer, water, telephone and other communication systems, electrical, sprinkler, HVAC and other service lines and ducts.
 8. Drainage tile, including connections to sumps and pits, in porous fill under slabs-on-ground.
 9. Sleeves for penetration through concrete.
 10. Provisions for electrical and lightning grounding.
 11. Embedded items of other trades similar to the items listed in this Article.
 12. Modifications to and preparation of existing substrates/work as required for proper completion of the new work shown.

1.3 RELATED WORK

- A. Related Work Specified Elsewhere, Amplified Elsewhere or Included in Other Contracts:
1. Submittals: Section 01 30 00.
 2. Owner's plant and field testing and inspection of concrete Work by Testing Agency engaged and paid for by Owner: Section 01 40 00.
 3. Site Preparation, Earthwork, Backfilling: Section 02 20 00.
 4. Polished Concrete Finishing: Section 03 35 43
 5. Structural Steel: Section 05 10 00.
 6. Pre-Applied Sheet Waterproofing: Section 07 13 24.
 7. Dampproofing: Section 07 15 00.
 8. Sealants: Section 07 90 00.

9. Painting: Section 09 90 00.
10. Plumbing, Fire Protection Systems and Heating, Ventilating, Air-Conditioning: Divisions 22 and 23.
11. Electrical: Division 26.
12. Furnishing of embedded items required by and specified under other Sections of this Specification.
13. Other items similar to the items listed in this Article.

1.4 APPLICABLE CODES AND STANDARDS

- A. General: Except as modified or voided by requirements specified herein or by details or notes included in the Drawings, Work specified under this Section shall conform to all applicable provisions of the codes, specifications, standards and other reference documents cited in this Specification and/or noted in the Drawings. In the event of conflict between provisions of stipulated reference documents and of this Specification or of another stipulated reference document, Contractor shall report in writing the details of the conflict. Decisions regarding applicability of provisions of this Specification and provisions of reference documents applied independently or as supplemented, modified or voided, will be provided in writing. Resolution of conflicts shall conform to the procedures set forth in the Agreement.
- B. Codes: All Work under this Section shall conform to the requirements of 2020 Building Code of New York State, hereinafter referred to as Building Code, and to the regulations of all governmental authorities having jurisdiction. Where more stringent, the following codes, standards, manuals and specifications, latest edition and revision, shall apply to the Work, all as modified herein or by Building Code:
 1. Standard Specification for Tolerances for Concrete Construction and Materials, ACI 117.
 2. Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete, ACI 211.1.
 3. Standard Practice for Selecting Proportions for Structural Lightweight Concrete, ACI 211.2.
 4. Recommended Practice for Evaluation of Strength Test Results of Concrete, ACI 214.
 5. Field Reference Manual: Specifications for Structural Concrete, ACI 301, with Selected ACI and ASTM References, SP-15. Contractor shall keep at least one full copy in the field office at all times.
 6. Guide for Measuring, Mixing, Transporting and Placing Concrete, ACI 304.
 7. Building Code Requirements for Structural Concrete, ACI 318 and Commentary, ACI 318R. (referred to hereinafter as ACI Code).
 8. Standard Specification for Cold Weather Concreting, ACI 306.1.
 9. Standard Practice for Curing Concrete, ACI 308.
 10. Guide for Consolidation of Concrete, ACI 309.
 11. Structural Welding Code - Steel, ANSI/AWS D1.1.
 12. Structural Welding Code - Reinforcing Steel, ANSI/AWS D1.4.
- C. Reference Documents: To the extent that the best quality of Work is provided, Work shall conform to the examples, procedures and recommendations listed below, latest edition and revision. Where provisions of the Building Code, this Specification, or codes, standards, manuals and specifications cited by this Specification are more restrictive or provide increased quality, the combination of provisions, examples, procedures and recommendations which provide both best quality and Building Code conformance shall control the Work.

1. ACI Detailing Manual, SP-66 (Includes ACI 315 and ACI 315R). Note that some aspects of SP-66 are out-of-date (bar development lengths, etc.)
 2. ACI Concrete Terminology, ACI CT-13.
 3. Chemical Admixtures for Concrete, ACI 212.3R.
 4. Guide for the Use of High-Range Water-Reducing Admixtures (Superplasticizers) in Concrete, ACI 212.4R.
 5. Guide for Use of Normal Weight Aggregates in Concrete, ACI 221R.
 6. Use of Fly Ash in Concrete, ACI 226.3R.
 7. Guide for Concrete Floor and Slab Construction, ACI 302.1R.
 8. Placing Concrete by Pumping Methods, ACI 304.2R.
 9. Hot Weather Concreting, ACI 305R.
 10. Cold Weather Concreting, ACI 306R.
 11. Guide for Consolidation of Concrete, ACI 309R.
 12. Guide to Formwork for Concrete, ACI 347R with the specific deletion of reference to tolerances where in conflict with this Specification. Tolerances given in ACI 117 shall apply to the Work except where less stringent than are provided under this Specification.
 13. Manual of Standard Practice, Concrete Reinforcing Steel Institute.
 14. Use of Epoxy Compounds with Concrete, ACI 503R.
 15. Guide for the Selection of Polymer Adhesives with Concrete, ACI 503.5R.
 16. Measurement of Properties of Fiber Reinforced Concrete, ACI 544.2R.
 17. Guide to Durable Concrete, ACI 201.2R.
 18. Protection of Metals in Concrete Against Corrosion, ACI 222R.
 19. Qualification of Post-Installed Adhesive Anchors in Concrete, ACI 355.4.
- D. ASTM (American Society for Testing and Materials) Specifications cited in ACI 318, ACI 301, this Specification or in cited reference documents shall be the year of adoption or tentative adoption and revision listed in the latest edition of the Annual Book of ASTM Standards, Index, except that, should a specific year of adoption or revision be cited by the Contract Documents, by Building Code, or be proposed by Contractor and be accepted by Structural Engineer, that edition shall apply to and shall control the Work.
- E. Conformance to Regulations: Work of this Section shall conform to all applicable federal, state, and local laws and regulations.
- 1.5 SUBMITTALS
- A. General: Submit Shop Drawings, product data, test reports and data, manufacturer's names, certifications, procedures, methodology statements, and the like as stipulated. Submittals shall be in PDF format and transmitted electronically, unless otherwise accepted.

1. Review of Contractor's submittals is only for the limited purpose of the examination of submittals for conformance with the design concept of the project and to assist Contractor in ascertaining that the information given in the submittals conforms to the requirements of the Contract Documents.
 2. Review of Contractor's submittals is not conducted for the purpose of determining the accuracy or the completeness of the submittal, for dimensions or quantities, or for installation or performance of the system or the piece(s) being submitted.
 3. Submittals by Contractor implies that Contractor has checked the submittal with care. Where by error or other cause, Contractor's check has not been accomplished, Contractor shall not rely on review but shall first check and shall then resubmit such material as though the submittal had been rejected.
- B. Shop Drawings:
1. General: Shop Drawings, as the term is used under this Section, are not Contract Documents, but are intended to demonstrate the way that Contractor intends to conform to the requirements provided in the Contract Documents. Contractor may wish to use these same drawings as a part of the instructions given to craftpersons for the accomplishment of the Work.
 2. Best Standards: Shop Drawings furnished under this Section shall conform to the best standards of the construction industry. Shop Drawings shall be prepared by and under the supervision of competent engineering personnel. Prior to preparation, Contractor shall retain a Professional Engineer, licensed in the state of New York, to supervise the preparation of and to check each Shop Drawing for compliance with the requirements of the Contract Documents.
 - a. Shop Drawings shall be prepared under the direction of personnel completely familiar with Architectural, Mechanical, Plumbing, Electrical and other building trades Drawings.
 - b. Comply with the requirements of ACI SP-66 where more stringent than is specified herein. Show bar schedules; stirrup size and spacing, drawings of bent bars, and size and arrangement of all reinforcement
 3. Shop Drawings shall be submitted for review and to governing agencies having jurisdiction for acceptance in accordance with the provisions of the Contract Documents.
 4. Shop Drawings shall be submitted in parts as follows:
 - a. Sleeve, Insert and Fitting Location Drawings,
 - b. Construction Joint and Crack Control Joint Location and Detail Drawings,
 - c. Formwork Drawings,
 - d. Placing Plans and Elevations,
 - e. Detail Drawings and Schedules,
 - f. As required for the work of other trades,
 - g. Field Work Drawings, and
 5. Sleeve, Insert and Fitting Location Drawings shall show clearly the location and orientation of each item to be placed into the formwork. Include items for the Work of other trades such as elevators, dock levelers, plumbing and sprinkler systems, HVAC, electrical and the like.
 6. Construction Joint and Crack Control Joint Drawings shall show the location of joints in beams, slabs, walls, columns and the like, and shall show also the sequence of pours and all else needed for the proper detailing of reinforcing steel. Show and detail waterstops, keys and the like. Indicate

extent and type of bonding compound. Submit in sufficient time to allow the orderly detailing of reinforcing steel.

7. Formwork Drawings shall include plans, elevations, sections and complete details to describe clearly, at an ample scale, all Work to be provided. Drawings shall be dimensioned accurately, where applicable, and shall be notated clearly. Detail ledges, curbs, pads, trenches, openings and the like from information given in Architectural, Structural, HVAC, Plumbing, Electrical and other Contract Documents.
 - a. Show in the Formwork Drawings and dimension thereon, holes required for passage of Work of other Divisions and other Sections of this Specification through Cast-In-Place Concrete Work.
 - b. Stay-in-Place Metal Form Drawings: Submit detailed Shop Drawings. Pay attention to the need for adequate bearing, including the effects of tolerances.
 - c. Contractor's Professional Engineer licensed in the project's jurisdiction shall be responsible for the design of formwork. As evidence of conformance with this requirement, each Formwork Drawing shall bear the seal and signature of Contractor's Professional Engineer.
 - d. Submit Shop Drawings for curved and radial concrete formwork and identify the formwork materials proposed for use.
8. Placing Plans and Elevations shall show, to scale with all dimensions, all concrete Work including top of slabs and depressions, pits, curbs, trenches, pads, equipment bases, steps, slopes, radii, curves, edges of slabs, openings, sleeves, blockouts and the like. Provide schedules and details showing placing sequences, bending, lengths and locations of all reinforcement. Show elevations of all concrete walls with top and bottom elevations, openings, ledges, pockets, construction joints, and all else needed to locate correctly all reinforcement. Detail top and bottom layers of two-way slab reinforcement on separate plans. Identify all epoxy-coated and galvanized reinforcement. Indicate all lap lengths and lap locations in the placing plans.
 - a. Detailing of Reinforcing Steel shall recognize the arrangement and dimensioning of individual bars, including the location of bend points, hooks and the like so as to preclude interference between bars, sets of bars, and embedded items and so as to allow clear spacing and concrete cover as provided in ACI 315 and ACI 318. Prepare details and provide sections showing placement sequences to minimize congestion of reinforcing steel at splices, intersecting bars around openings and block-outs, and adjacent to embedded items. Illustrate and note correct placing arrangement and placing sequence to enable field placing crews to properly place and execute the Work. Provide sections, typical details and notes to illustrate correct location and arrangement of and clear cover for reinforcement and required placement locations. Provide suitable and necessary details and placing sequence information in Shop Drawings so as to properly instruct reinforcing steel placement personnel.
9. Detail Drawings and Schedules for reinforcing steel, including welded wire fabric (WWF), shall be prepared in strict accord with the methods and procedures provided in ACI SP-66 except that provisions of the Drawings and of this Specification shall prevail. Detail Drawings shall include bar and fabric lists; applicable bar lists shall be submitted simultaneously with related Detail Drawings. Prepare Detail Drawings which provide for reinforcement, including dowels, properly positioned in all concrete Work, so that material can be properly cut, bent and packaged from information given in Detail Drawings.
 - a. Reinforcement for concrete Work shall include all reinforcement shown or scheduled in Drawings, including all reinforcement required by typical details and general notes. Provide minimum percentages of reinforcing steel required by ACI Code where such reinforcement exceeds that stipulated in Drawings.

- b. Reinforcement shall be spliced in strict accord with ACI 318. Where practical, stagger splices of adjacent bars.
 - c. Unless shown specifically to the contrary, all reinforcement shall be spliced and all splices shall develop the full tensile capacity of the reinforcement. No reduction in splice length or development requirements may be taken because supplied reinforcing is larger than that required under the Contract.
 - d. Lapped splices shall not be used for bars larger than size No. 11.
 - e. Lapped bars may be detailed to be placed in contact and securely wired together or may be separated in accord with ACI 318 to permit embedment of the entire surface of each bar in concrete.
 - f. Extend slab, beam and girder reinforcement to the far face of supports except where lesser embedment is provided explicitly in the Drawings.
10. Requirements for the Work of Other Trades: Submit detailed drawings showing requirements for the passage of reinforcement through structural steel and the like.
11. Field Work Drawings: Prepare Field Work Drawings depicting all field work required to accommodate field conditions. Survey, measure and document actual field conditions as required to properly depict existing conditions.
12. Where shop drawings are submitted that include construction loads imposed on the base building structure, these drawings shall clearly show attachment details, locations with respect to project grids, as well as magnitude and direction of loadings for review. These shop drawings and supporting load calculations shall bear the seal and signature of Contractor's Professional Engineer licensed in the project's jurisdiction.
13. Contractor shall coordinate and cross-check for accuracy, completeness and correct relationship to the Work of other Sections, each Shop Drawing prepared for the Work of this Section, including each Shop Drawing prepared by accepted subcontractors. Pay particular attention to areas of congestion of reinforcement and to areas where reinforcement and other embedded items combine to cause congestion. Contractor's check shall include a verification of compliance with the Contract Documents and shall be performed prior to submission and resubmission of each Shop Drawing. The personally inscribed initials of the person(s) preparing each shop drawing as well as the detailing agency's supervisor and chief checker shall be included in the title block or similarly prominent location.
14. Substitutions: Should Contractor desire a Substitution or Deviation from the Drawings or Specifications, or both, Contractor shall submit the specific request in writing prior to the submittal of Shop Drawings showing the Substitution or Deviation. Requests for Substitutions or Deviations shall be submitted on Contractor's letterhead. Substitutions and Deviations not identified, or identified only in letters of transmittal or in Shop Drawings, or both, without the required written description on Contractor's letterhead, may not be accepted and shall be sufficient cause for the rejection and the return of such Shop Drawings without further action.
- a. Acceptance of Shop Drawings including Substitutions and Deviations not detected during Shop Drawing review, shall not relieve Contractor from responsibility to conform strictly to the Contract Documents. Substitutions and deviations will be allowed only where permitted in writing.
 - b. Architect is the sole judge of the suitability of Contractor-proposed substitutions. Review of Contractor-proposed substitutions and deviations is subject to section 2.20 of the Agreement.

- C. Product Data: Submit printed manufacturer's literature for each manufactured item specified under Part 2 - Products, along with test data as may be requested. Include detailed instructions for application and installation.
- D. Names of Manufacturers/Suppliers: Submit for acceptance the names of the following products along with certification that the products conform in all respects to the requirements of the Contract Documents:
1. cement
 2. aggregates
 3. admixtures
 4. silica fume (microsilica), fly ash, blast furnace slag, and other natural pozzolans
 5. fibrous reinforcement
 6. ready-mix concrete
 7. form sealers and release agents
 8. reinforcing bars, including galvanized and epoxy-coated reinforcing bars
 9. steel welded wire fabric
 10. deformed bar anchors
 11. non-shrink grout and epoxy grout
 12. bonding compound and epoxy adhesive
 13. polymer patching/feathering compound
 14. post-installed anchors
 15. expansion dowels
 16. waterstops
 17. polyurethane sealant
 18. joint filler and compressible filler
 19. cellular polystyrene
 20. vapor barrier
 21. curing and sealing, strippable curing compound, and liquid/sealer densifier
 22. evaporation retarder
 23. surface retarder
 24. waterproofing and chloride ion screen
 25. other products, material and fixtures, as specified herein
- E. Mill Tests: Submit certified mill test reports for cement, for steel reinforcement, including bars, welded wire fabric and dowels,. Provide also to governing agencies having jurisdiction.

1. Mill test reports shall state clearly the governing ASTM specification and shall be certified and notarized by Contractor as conforming in all respects to that specification.
- F. Epoxy Coating Plant Certification: Submit copy of current CRSI Epoxy Coating Plant Certification.
- G. Certification for Curing Compounds and Sealers, Hardeners, Dustproofing, etc.: Submit certificate of compatibility with concrete and with materials to be applied to concrete surface.
- H. Certification for Admixtures: Submit notarized document of compatibility of each admixture with all other concrete ingredients and with each applicable concrete surface treatment.
- I. Design Mixes as provided in Part 2 of this Specification. Submit proposed mix designs for both concrete and grout on the Mix Design Submittal Form included with this specification. Submit test results and other supporting data on each mix design.
1. Organization description for both plant and job site.
 2. Plant locations.
 3. Plant description: plant type, degree of automation, batching equipment, testing equipment, mixing equipment, plant capacity and the like.
 4. Inspection, calibration and maintenance of batching equipment, testing equipment and mixer trucks.
 5. Materials selection, control, handling, storage and traceability.
 6. Materials testing standards, testing procedures and frequency of testing.
 7. Materials measuring, batch sequencing and mixing time.
 8. Concrete testing standards, testing procedures and frequency of testing.
 9. Batch/truck ticket samples.
 10. Transporting Methodology: driver procedures, advanced notice, delivery time constraints, delivery routes and the like.
 11. Contingency plans in case of plant shut down during concrete placement operation.
- J. Post-Installed Anchor Certificates: Submit approved independent testing report per ACI 355 (ICC-ES report), Manufacturer's Printed Installation Instructions, letter describing installation procedures, and installer qualifications including certification for horizontal and overhead adhesive installation where applicable.
- K. Protective Measures: Contractor's construction procedures shall be typewritten and shall include charts and diagrams, as applicable and necessary, to explain fully the proposed procedures, methods, equipment and operations in order to allow review, assist the Testing Agency's evaluation of the Work, and to allow Contractor's personnel to perform Work in full conformance to the Contract Documents. Submit procedures for the following:
1. Both hot, normal and cold weather concreting procedures shall be submitted not less than four weeks before beginning the Work of this Section, regardless of the need for the immediate implementation of such procedures. Procedures shall include hot weather cooling systems, cold weather heating systems, insulation, enclosures, provisions for mass concrete work and the like. Finishing procedures and timing and duration of curing shall be described.
 2. Protection of concrete against injury due to mechanical contact and construction operations.

3. Welding of reinforcing bars and dowels.
 4. Protection of curtain wall and other systems.
 5. Protection of waterproofing and the like.
 6. Protection of Work by other trades.
 7. Procedures for placing, finishing, curing and protecting silica fume concrete shall include procedures for protecting that concrete from drying and plastic shrinkage cracking during placing and finishing processes, include procedures for curing and technical literature for proposed equipment.
- L. As-Built Shop Drawings: In a format acceptable to each, and at the completion of the Work, provide to Owner, to Architect and to Structural Engineer, one complete digital set of all Shop Drawings (including field changes, Field Work Drawings, and the like), so as to provide as-built drawings of finished and completed Work under this Section.
- M. Governing Agencies: Provide all drawings, tests, inspections, reports, affidavits, manufacturer's certifications, certification of compliance with VOC limits, and other requirements and data to governing agencies having jurisdiction.
- 1.6 MEASUREMENTS AND TOLERANCES
- A. Measurements:
1. Field Measurements: Obtain all field measurements required for proper fabrication and installation of Work covered by this Section. Submit, prior to installation, all measurements indicating discrepancies from the Drawings. Describe in writing and, where applicable, by sketches proposed methods of correcting discrepancies. Measurements are the responsibility of Contractor.
 2. Lay out each part of the Work in strict accordance with the Architectural, Structural, Mechanical, Electrical, Plumbing and all other Drawings and be responsible for correct location of same. Lay out from at least two pre-established benchmarks and axis lines, individually correct for length and bearing.
- B. Allowable Tolerances: Conform to the requirements listed below and as given in ACI 117, whichever is more stringent; provide more restrictive tolerances where required to meet job conditions and Building Code. Tolerances indicated shall apply to the full height of the building. Variations from grade and flatness of Work may be measured prior to removal of supporting formwork or shores and shall be taken as either plus or minus from a true line.
1. Variations from Plumb:
 - a. lines and surfaces of columns, piers, walls, corners and the like:
1/4 inch (6 mm) per 10 feet (3 m);
1 inch (25 mm) per 40 feet (12 m) or more; and
1 inch (25 mm) maximum for the entire height, not more than noted above.
 - b. exposed column, control joint grooves, and other conspicuous lines shall correspond at all locations, and shall not exceed:
1/4 inch (6 mm) per 20 feet (6 m);
3/8 inch (10 mm) per 30 feet (10 m); and
1/2 inch (13 mm) per 40 feet (12 m) and larger

2. Level Alignment:
 - a. Elevation of top of slab (both slab-on-ground and suspended slabs), 3/4 inch (20 mm).
 - b. Elevation of formed surfaces before removal of shores, 3/4 inch (20 mm).
 - c. Lintels, sills, parapets, horizontal grooves and other lines exposed to view, 1/2 inch (13 mm).
 3. Relative Alignment:
 - a. Unless otherwise noted, formed surfaces may slope with respect to the specified plane at a rate not to exceed:
 - i) 1/4 inch (6 mm) in 10 feet (3 m).
 - ii) for lintels, sills, parapets, horizontal grooves and other lines and surfaces exposed to view, 1/4 inch (6 mm) in 20 feet (6 m).
 4. Sleeves and Openings: Variations of the sizes and locations of sleeves, floor and wall openings and the like shall not exceed minus 1/4 inch (-6 mm) or plus 1 inch (+25 mm) from size and 1/2 inch (13 mm) from centerline locations given in accepted Shop Drawings.
 5. Anchors and Inserts: Variations in the location of anchors and inserts shall not deviate more than 3/8 inch (10 mm) vertically nor 1/4 inch (6 mm) horizontally from positions shown in accepted Shop Drawings.
 6. Cross-Sectional Dimensions of columns and beams and the thicknesses of slabs and walls shall not deviate from theoretical by more than the following:
 - a. for dimensions of 12 inches (300 mm) or less:
+3/8 in.(+10 mm), -0 in.(-0 mm)
 - b. for dimensions of more than 12 inches (300 mm) but not over 36 inches (900 mm)
+1/2 in.(+13 mm), -3/8 in.(-10 mm)
 - c. for dimensions over 36 inches (900 mm)
+1 in.(+25 mm), -3/4 in.(-19 mm)
 7. Footings and Pile Caps shall vary in plan dimension from theoretical by not more than -0.5 inch (-13 mm) nor more than +2 inches (+50 mm). The center of gravity shall be within 2 percent of the theoretical footing dimension but, in no case, shall deviate from theoretical by more than 2 inches (50 mm). Footings and pile caps shall not be reduced in thickness by more than 5 percent of the specified thickness but, in no case, shall the thickness be less than the theoretical by more than 3 inches (75 mm).
- C. Flatness/Levelness Tolerances for Floors: The flatness/levelness of floors shall conform to the requirements of Table 1.6-1 and will be determined in accordance with ASTM E 1155 (ASTM E 1155 M), Standard Test Method for Determining Floor Flatness FF and Floor Levelness FL Numbers.
- D. Tolerances for existing work significantly exceed tolerances for new work. Where new work meets existing work anticipated at least three (3) times more deviation from the tolerances specified for new work. Within ten (10) working days of exposing existing work, submit surveyed or scanned information documenting existing conditions of work to remain in place.

TABLE 1.6-1 MINIMUM ACCEPTABLE VALUES FOR FF AND FL			
Location	Steel Trowel Finish	Float Finish Exposed Broom Finish & Garage Floors	Scratch Finish
1. Slabs-on-Ground:			
a) Specified Overall Value:	FF = 35/ FL = 25	FF = 20/ FL = 15	FF = 15/ FL = 13
b) Minimum Local Value:	FF = 25/ FL = 20	FF = 15/ FL = 13	FF = 13/ FL = 10
2. Unshored Suspended Slabs and Cambered Slabs:			
a) Specified Overall Value:	FF = 25	FF = 20	FF = 15
b) Minimum Local Value:	FF = 17	FF = 15	FF = 13
c) 80% of the floor shall fall within a ¾" envelope centered on the mean of the data			

Where:

- i) The Specified Overall Value is the minimum acceptable FF or FL value determined where all measured values of that type on a given Test Surface are combined per ASTM E 1155.
- ii) The Minimum Local Value is the minimum acceptable FF or FL value determined for a given Test Section as defined below.
- iii) A Test Section shall be bounded by column lines and half column lines, or by construction, control and/or expansion joints, whichever is smaller, but in no case shall a Test Section area be smaller than 320 square feet (30 square meters) or larger than 540 square feet (50 square meters). Test Sections shall also satisfy the criteria set forth in ASTM E 1155.

1.7 TESTING AND INSPECTION

- A. Owner's Testing Agency: All Work is subject to Special Inspection as required by Building Code. Subject to acceptance by Architect, Owner will engage and pay for the services of an independent testing agency (Testing Agency) as outlined in Section 01 40 00, Inspection and Testing. The selected Testing Agency will meet the requirements of ASTM E 329. Contractor alone is responsible for the achieving of the required level of quality, both in the shop and in the field. Testing Agency will rely heavily on reviewed Shop Drawings, as described earlier in this Specification, in its examination of as-constructed Work. Contractor shall not retain Owner's Testing Agency for its own Work but may, subject to acceptance, contract through Owner for such work.
- B. Responsibilities and Duties of Testing Agency: Testing Agency will perform the following functions, inspections and tests:
 1. On instructions and at locations selected by Architect, Testing Agency may sample materials taken from the as-erected Work.

2. Take steps to ascertain that concrete is proportioned and mixed in accordance with the requirements of the Drawings and this Specification.
3. Maintain a presence at the project site during the placing of concrete.
4. Examine formwork for general conformance with the requirements of this Specification.
5. Examine as-placed reinforcing steel for general conformance with the requirements of the Drawings and of this Specification.
6. Receive and review concrete batch/truck tickets at time of delivery and prior to discharging concrete. Review of batch tickets shall include the comparison of actual material and quantities batched to mix design target values.
7. Monitor the methods of conveying concrete from the mixer to the point of placement in the Work.
8. Make, perform and evaluate testing of concrete cylinders in accord with this Specification, with ASTM C 31 and ASTM C 39, and as provided in Section 01 40 00. Capping for concrete cylinders shall be in accordance with either ASTM C 617 (bonded caps) or ASTM C 1231 (unbonded caps).
 - a. For each class and strength of concrete take the minimum cylinders indicated below, for each day's work, but not less than for each 100 cubic yards (75 cubic meters) of concrete nor less than for each 4300 square feet (400 square meters) of surface area for slabs or walls. Cylinders shall be tested in the schedule listed below. Where 28 days cylinders fail to conform to the requirements of this Specification, cylinders will be held and tested at 56 days;

Cylinder Size	Total Cylinders	Cylinder Testing Schedule		
		@7	@28	@56
		days	days	days
4" x 8"	7	1	3	3
6" x 12"	5	1	2	2

- b. Where, after sampling any third portion of a truck load, the elapsed time exceeds 30 minutes, a set of 5 test cylinders will be taken from each third of the load taken at intervals greater than 30 minutes;
 - c. Monitor protection systems for test cylinders; and
 - d. Identify all test cylinders as to placement date and location, concrete mix type and designation number, concrete batch ticket serial number, and other pertinent data.
9. Perform slump tests in accord with ASTM C 143.
 - a. Take one test at the beginning of each placement, both at the truck and at the point of discharge, one test at the taking of test cylinders and such other tests as are deemed appropriate by Testing Agency, by Construction Manager, or by Architect.
10. Perform air entrainment tests in accord with ASTM C 231 (ASTM C 173 for concrete with lightweight or high absorption aggregates).
 - a. Take one test at the beginning of each placement, one test at the taking of test cylinders and such other tests as are deemed appropriate by Testing Agency, by Construction Manager, or by Architect.
11. Determine the temperature of freshly mixed concrete on a random basis during concrete placement in accord with ASTM C 1064.

12. Perform microwave tests for determining the water content of freshly mixed concrete in accordance with AASHTO T318 take tests on a random basis and as specified.
13. Testing Agency may visit the batch plant as often as weekly, more or less often where directed. Each visit will involve one or more of the following operations:
 - a. Examine aggregates for grading, cleanliness, moisture content, and the like;
 - b. Examine plant operation and equipment such as stock piles, bunker loading, scales, mixer, cement, water and admixture dispensing;
 - c. Review proportioning of mix, particularly for free moisture and the like; and
 - d. Truck loading.
14. Test floor slab finished surface for flatness and levelness in accord with ASTM E 1155 and with this Specification.
 - a. The Floor Flatness/Levelness Inspector shall be certified by the Face Companies of Norfolk, Virginia as being competent in F-Number measurement using the Dipstick Floor Profiler.
 - b. Measure slab elevations with a device capable of measuring and recording slab elevation changes of 0.002 inches (50 μ m). Use Dipstick by Face Companies, F-meter by Allen Face & Company, or other accepted device.
 - c. Where the area of slab surface which falls within 24 inches (600 mm) of construction joints exceeds 25 percent of the slab surface, the entire surface shall be tested, including those areas within 24 inches (600 mm) of construction joints.
 - d. Complete testing within 24 hours of placement and before shores are removed, and submit results, including a key plan showing area tested, data sheets and all results required by ASTM E 1155, within 48 hours of placement. Identify clearly all defective areas. Submit to Owner, Architect and Contractor.
15. Maintain a copy of ACI 311.1R - ACI Manual of Concrete Inspection, ACI 311.4R - Guide for Concrete Inspection and ACI 311.5R - Batch Plant Inspection and Field Testing of Ready-Mixed Concrete.
16. All test reports indicating non-compliance shall be emailed immediately to all participants listed on the distribution list and the hard copy shall be sent on different colored paper.
17. Perform Special Inspection of post-installed anchors in accordance with the Building Code, Manufacturer's Printed Installation Instructions, approved independent testing report per ACI 355, Contract Documents and approved shop drawings. As a minimum, provide continuous inspection of adhesive anchors installed in horizontal, or upwardly inclined orientations, supporting tension loads; and periodic inspection of all other conditions of post-installed anchors. Special Inspectors shall be qualified (via experience, training, ACI/CRSI certification, etc.) with the installation and inspection of post-installed anchors. Special Inspections shall include but are not limited to the following:
 - a. Verify installer qualifications as required per the Contract Documents;
 - b. Verify anchor type, material, size, length, and condition;
 - c. Verify minimum concrete age, temperature, strength, and dry condition;
 - d. Verify drilling method, hole cleaning, preparation per Manufacturer's Printed Installation Instructions; and

e. Verify anchor position, setting, and installation method

C. Authorizations: Owner's Testing Agency will not be authorized to:

1. Authorize or accept deviations or substitutions from the Contract Documents.
2. Assume any of the responsibilities of Contractor; for example, Testing Agency may not advise formally or informally on any aspect of construction means, methods, techniques, sequences or procedures, or safety precautions and programs in connection with the Work.
3. Accept Shop Drawings or samples.
4. Approve or issue a Certificate of Payment, a Change Order, or issue verbal or written instructions which modify the Contract between Owner and Contractor.

D. Responsibilities and Duties of Contractor:

1. Performance or waiving of inspection, testing or surveillance by Testing Agency for a given portion of the Work will not relieve Contractor from responsibility to conform strictly to the requirements of the Contract Documents.
2. Notice: To facilitate and to assist testing and inspection, Contractor shall cooperate by providing proper notice of the initiation of Work. Provide 24 hours minimum notice of each concrete placement or other operation requiring plant or job site testing or inspection.
3. Access to Documents, Facilities and Materials: Furnish one copy of each accepted Shop Drawing and of each mill test certificate to Testing Agency. Provide authorized personnel convenient and free access to all parts, locations and areas of Work, including storage areas. Provide hoisting, turning and moving of materials and reasonable quantities of scaffolding, power, casual labor, and other provisions and assistance necessary to allow quality and effective inspection and testing of Work on a timely basis.
4. Provide suitable and adequately sized storage and initial curing facilities for concrete test cylinders. Conform fully to the requirements of ASTM C 31. Provide all necessary job site facilities required to allow and assist Testing Agency to perform its tests and inspections in full conformance to all applicable standards, codes, and provisions of this Specification.
5. Secure and deliver to Contractor's independent testing laboratory without additional cost to Owner, representative samples of each material or ingredient required to be tested and certified prior to submittal for acceptance.
6. Reimburse Owner for the actual cost of all tests performed exclusively for the Contractor's convenience (such as job cured cylinders for early stripping of formwork) and for all tests and retests made necessary by initial nonconformance to Contract Documents.
7. Cost of Owner's Tests by Testing Agency will be borne by Owner. However, where additional tests are deemed necessary by Construction Manager or by Architect on account of failure to pass tests, the cost of additional testing will be deducted from payments to Contractor so as to reduce the Contract price.

1.8 QUALITY ASSURANCE

- A. Source Quality Control: Contractor's material control procedures shall be effective and shall assure that all Work fulfills the requirements of the project as well as the applicable provisions of the Contract Documents. All materials shall be tested in accord with the requirements of Building Code, of Building Department, of governing authorities having jurisdiction and of this Specification.
- B. Shop and Construction Site Quality Control: Contractor shall maintain, on staff, sufficient office, field engineering, and field supervision staff to assure that all data and layout drawings for Work of other

Sections is transmitted to detailers to allow proper detailing of holes, penetrations, chases, and the like and to assure proper execution of the Work in the field.

- C. Minimum Qualifications: Fabricator, installer and detailer of reinforcing steel shall each have experience with at least five buildings of the type of this work.
1. The reinforcing steel detailing firms shall be subject to acceptance. Detailing firms shall demonstrate in-house quality control procedures to the satisfaction of Construction Manager and of Architect. Acceptance of reinforcing steel detailer is provisional and may be withdrawn where detailing is not of sufficient quality to meet project requirements.
- D. Concrete Strength: Evaluation and acceptance of concrete strength shall conform to the requirements of ACI 318. Where laboratory cured cylinder test results do not satisfy these requirements, Contractor shall make sufficient and appropriate changes to concrete proportions for the remaining Work in order to assure acceptable strength test results. Where required, Contractor shall provide also reshoring and additional curing of concrete slow in attaining design strength. Additionally, at its sole discretion, Construction Manager or Architect may permit or require core tests in accord with ASTM C 42. Load tests shall not be performed without Construction Manager's or Architect's specific concurrence, and then only after acceptance of comprehensive, detailed procedures prepared by, signed and sealed by Contractor's Professional Engineer, and submitted in writing.
1. Core tests may be required of Contractor where:
 - a. the average of one or more sets of three consecutive strength tests falls below f'_c ;
 - b. one or more individual strength tests falls below f'_c by more than 500 psi (3500 kPa);
 - c. strength tests of field-cured cylinders, accomplished at the designated age, fall more than 15 percent below strength tests of companion laboratory-cured cylinders;
 - d. samples of concrete for acceptance test cylinders are not representative of concrete in place in the structure.
 2. Perform all tests, and all corrective and restorative measures at no expense to Owner. Construction Manager and Architect shall be sole interpreter of the need for additional tests, and Construction Manager's and Architect's judgment shall be binding on Owner and Contractor alike.
 3. Laboratory cured cylinders shall not be used for evaluating either compressive strength or acceptable condition of concrete suspected of being frozen, or for determining strength of concrete for early stripping of formwork.
 4. Should core specimens be taken, Contractor shall plug all core holes solid with matching concrete or non-shrink grout as directed. All such plugging shall be Contractor's responsibility and shall be performed at no expense to Owner. All such work shall be subject to acceptance and to correction by Contractor, where not in conformance with the Contract Documents.
- E. Qualifications: Contractor shall determine, shall warrant and shall certify that producers, epoxy coating applicator, reinforcing steel detailer, fabricator and installer, formwork constructor, concrete placer, finisher and all others involved in the Work, along with their personnel, are experienced, qualified and adequately staffed to undertake the specific Work required under this Section.
- F. Post-Installed Anchors shall be installed by workers with experience and training with installing the specified anchors. Installation of adhesive anchors in horizontal or upwardly inclined orientations supporting tension load shall be performed by installers certified through the ACI/CRSI adhesive anchor installer certification program, or approved equivalent.
- G. Documentation of Contract Conformance: Perform quality control functions required to achieve and to document that Work conforms to the Contract Documents. Provide access to Contractor's quality control

documents and reports upon request. Provide reasonable numbers of copies of specific quality control reports on request.

- H. Purchase Orders: Each purchase order shall identify the end use of the purchased material. Contractor shall ensure that manufacturer or vendor understands fully the intended use of the material in the Work.

1.9 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Original Containers: Materials shall be delivered to the site, ready for use, in the manufacturer's original and unopened containers and packaging, bearing original labels as to type of material, brand name, and manufacturer's name. Delivered materials shall be identical to accepted samples.
- B. Storage: Materials shall be stored under cover in dry, weathertight, adequately ventilated and clean locations off the ground. Storage methods shall also provide for free and rapid drainage of rainwater and shall prevent collection of water on or within stored materials. Post-installed anchors shall be stored in accordance with manufacturer's requirements.
- C. Protect reinforcing steel and mesh from scaling, oil, grease and distortion. Reinforcing steel and mesh that has rusted to the extent of scaling will be rejected and may be placed in the Work only after proper cleaning, and shall be subject to acceptance.
- D. Aggregates to be used in field mixed concrete or grout shall be stockpiled in separate bins or piles in a manner suitable to minimize segregation and contamination of aggregates. Field mixing is not encouraged and will be allowed only with specific written permission.
- E. Removal: Delivered materials which are damaged or otherwise not suitable for installation, shall be removed from the job site and replaced with acceptable materials.
 - 1. Construction Manager and Architect shall be the sole judge of the suitability of such materials and neither Owner nor Contractor may challenge Construction Manager's or Architect's decisions as to acceptability.
- F. Batch/Truck Tickets: Provide a copy of each batch ticket for each batch of concrete discharged and used in work. Batch tickets shall be submitted to Owner or Owner's inspection agency prior to discharging concrete. Contractor shall retain duplicate tickets until such time as Owner has received a Certificate of Occupancy. Tickets need indicate the following:
 - 1. Ready-mix batch plant name and location.
 - 2. Project identification number, name and location.
 - 3. Serial number of ticket.
 - 4. Truck number.
 - 5. Mix type and designation number.
 - 6. Date and time of first mixing of cement and aggregates.
 - 7. Actual material and quantities batched, both at plant and site, including total free water and admixtures. Total free water includes free water on the aggregates, water in each admixture, water and ice.
 - 8. Amount of concrete batched.
 - 9. Signature of plant quality control supervisor and, if water and/or admixtures are added at the site, site quality control supervisor.

1.10 JOB CONDITIONS

- A. Contractor's Responsibility: Contractor shall be solely responsible for the correctness of dimensions and quantities and for the fitting to other Work; for Work to be confirmed and correlated at the site; for information pertaining to the fabrication procedure or to the means, methods, techniques, sequences and procedures of construction; and for the coordination of the Work of this Section with the Work of all other trades. The verification of the physical interrelationships of elements of the Work from Contract Documents and in the field is solely Contractor's responsibility. Review of Contractor's submissions does not relieve Contractor from these responsibilities.
- B. Contractor's Coordination: Contractor shall coordinate and schedule the Work of this Section with the Work of other Sections of this Specification in order to optimize quality and to avoid delay in overall job progress.
- C. Rejection of Work: Testing Agency may inspect and test materials at the source before shipment as well as at the site before, during or after installation in the Work. Construction Manager and Architect reserve the right, at any time before final acceptance of the completed Work, to reject material not conforming with specified requirements, regardless of previous tests, inspections, acceptances, or inclusion in certificates of payment.
- D. Provisions for Other Work: The Work under this Section shall include required cutting, forming, reinforcing steel and all else required for the passing through and attachment of other Work.
- E. Reinforcement Quantities: Contractor's bid shall be for all Work. Apparent omissions or conflicts in the Documents shall be reported at the time of discovery.
- F. Equipment Bases and Foundations: Unless given in the Contract Documents to the contrary, equipment bases and foundations shall be reinforced with not less than #5 at 12" (300 mm) o.c., top and bottom, each way.
- G. Construction Sequence: Descriptions of limitations on construction sequence are intended to assist Contractor in coordinating the Work of the Project. Descriptions do not describe fully the limitations given, do not describe all limitations, nor do they preclude construction sequences not contemplated herein. Whether or not Contractor follows the limitations on construction sequence described herein, and until such time as the structural Work is completed, Contractor remains fully responsible for both the stability and the safety of the Work; adherence to the limitations described herein does not relieve Contractor from that responsibility.
 - 1. Generally, the structure is to be constructed from the bottom to the top, floor-by-floor, with Contractor supplying such temporary bracing and shoring as may be required to compensate for the lack of completion of portions of the construction.
 - 2. Do not backfill behind earth-retaining walls until needed permanent construction or adequate shoring is in place.
 - 3. Plan and accomplish construction sequence in accord with Structural, Architectural, Mechanical, Electrical and all other Drawings, forming a part of the Work.
 - 4. Contractor's Professional Engineer shall review and accept Contractor's Construction Sequence. Contractor shall submit a letter, signed and sealed by Contractor's Professional Engineer, as evidence of conformance with this requirement.
- H. Construction Loads: The structure is designed to resist safely the loading prescribed by Building Code for the finished building. No provisions is included for loads or stresses imposed or induced by Contractor's means and methods of construction. Design loads are provided in Building Code but are sometimes modified upward as provided in Structural Engineer's Design Criteria.
 - 1. Where Contractor elects to place loads on the structure or elects to otherwise load or deform the structure in excess of the design loads, Contractor shall submit drawings and supporting

calculations prepared under the supervision of and sealed by Contractor's Professional Engineer licensed in the project's jurisdiction.

- a. Review of Contractor's submittal shall not relieve Contractor from full responsibility for Contractor's means and methods of construction.
- I. Accidents and Hazardous Conditions: Contractor shall prepare and shall submit promptly a detailed written report of all accidents and other occurrences involving death, significant personal injury and/or significant losses in tangible property.
- J. Installing and Rigging Equipment: Contractor shall shore all construction susceptible to impact loading from the installation of equipment installed by other trades.
 1. Such equipment shall include but shall not be limited to boilers, chillers, refrigeration equipment, pumps, transformers, elevator machines and the like.
 2. Remove shoring when equipment installation is complete but not before structure has achieved design strength.

1.11 DEFICIENT WORK

- A. Repairing, Patching, Cleaning: Contractor shall correct all Deficiencies in the Work of this Specification including areas where Testing Agency reports, or Construction Manager's or Architect's rejections have indicated that Work is not in full compliance with the Contract Documents. Perform, at no expense to Owner, all additional tests that Construction Manager or Architect deems necessary to reconfirm noncompliance of the original Work and perform, at no expense to Owner, all tests and inspections which may be necessary to show compliance of corrected Work.
- B. Defective and Nonconforming Work: Defective Work, unsuitable Work, or Work otherwise failing to conform to the Contract Documents shall be made good by Contractor at no change in the amount of or the time of the Contract. Contractor shall prepare appropriate details and procedures for bringing such Work into conformance with the Contract Documents and shall submit such details and procedures for acceptance. Corrective Work, including materials, shall conform strictly to accepted details and procedures. Nonconforming Work may be rejected at any time, regardless of prior acceptance in Shop Drawings, prior inspection, inclusion in inspection or test reports, or inclusion in certificates of payment.
- C. Deficiencies: Where Work exhibits any one or more of the following deficiencies, or where Work otherwise fails to conform to the requirements of the Contract Documents or to the requirements of Building Code, for any reason or combination of reasons, such Work shall be considered Deficient and not in conformance with the requirements of the Contract:
 1. Low cylinder strength at 28 days, as defined by this Specification.
 2. Excessive or deficient water, air, cement, admixture, or any other material.
 3. Slump and slump-flow not in accord with this Specification.
 4. Unauthorized addition of water.
 5. Spalling, honeycombing or the like.
 6. Unauthorized cutting, chopping, construction joints, cold joints and so forth.
 7. Workmanship not in accord with the Drawings, with this Specification, with accepted samples, or with referenced codes or standards.
 8. Cracking, surface defects, or improper consolidation.
 9. Exceedance of tolerances, lack of alignment, and incorrect forming.

10. Floor flatness/levelness F-numbers (either FF, FL or both) which measure less than specified minimum values.
 11. Evidence of freezing, improper curing and the like.
 12. Contact with aluminum or with aluminum alloys except where specifically permitted under this Specification.
 13. Post-installed anchors not set in accordance with Manufacturer's Printed Installation Instructions, adhesive anchors not set with insufficient adhesive (no overfill visible).
 14. Use of non-conforming materials or systems.
- D. Replacement or Repair: Where Construction Manager or Architect, at its sole discretion, finds any of the above deficiencies or other Work not in accord with the requirements of the Contract Documents, Construction Manager or Architect may order that the affected Work be replaced or repaired at Contractor's expense.
1. Contractor shall reimburse Owner for the actual amount of the fees of Testing Agency for the reinspection and the retesting of Work deemed defective by Construction Manager or by Architect.
- E. Cost: The cost of all other activities and procedures associated with defective Work shall be paid by Contractor.

1.12 PRE-CONSTRUCTION CONFERENCE

- A. Function: Within 30 days following Notice to Proceed, Contractor shall schedule a meeting at a mutually agreed time. The meeting is to include General Contractor, Concrete Contractor, finisher foreman, Concrete Supplier, Formwork Manufacturer, Admixture Supplier, Construction Manager, Architect, and Structural Engineer. The principal function of the Pre-Construction Conference is to clarify matters involving the construction of the project, including the requirements of coordination and scheduling. Such technical matters as may be of concern to Contractor are proper topics for this Conference.
1. While minutes shall be prepared and be distributed by Contractor, discussions that take place during the course of the Conference, including the minutes of those discussions, do not modify construction requirements or the content of the Contract Documents. Such modifications are accomplished only through the issuing of formal, written instructions.
 2. Be prepared to discuss materials, forming systems, concrete mix designs, concrete mixing, transporting, pumping, placing, consolidating, finishing, and curing, and other Work associated with Cast-In-Place Concrete. Submit an agenda, in writing and in advance of Conference.

PART 2 - PRODUCTS

2.1 CONCRETE MIXTURES

- A. Contractor Furnished Mix Designs: For each type and strength of concrete mixture and grout mixture required in the Work, Contractor shall submit for Architect's acceptance a mix design. Each mix design shall conform to the applicable provisions of this Specification and Building Code. Mix designs shall be established by Contractor's Professional Engineer licensed in the project's jurisdiction on the basis of field experience and or trial mixes prepared by Contractor and both monitored and tested by an independent testing laboratory retained and paid by Contractor. Mix designs in current use, documented by current test reports, may be submitted for acceptance in accord with ACI 301. All mix designs shall be submitted on the Mix Design Submittal Form included in this specification. This form is available electronically for Contractor's use.
1. Contractor shall be fully responsible for conformance to all mix design and control provisions of this Specification and for the strength, consistency, and handling of concrete. Concrete supplier, and admixture manufacturer(s) shall state and certify that the proposed concrete mixes and placing

procedures will produce the strengths, finishes, densities and like qualities required by this Specification.

2. Mix designs may be adjusted by Contractor to suit minor variability of materials, job conditions, weather, test results and other data, subject to acceptance and provided there is no change in the amount of the Contract; laboratory data for revised mix designs shall be submitted and accepted prior to use in the Work.
 3. Contractor shall pay all costs associated with preparing, testing, documenting and submitting design mixes for each concrete mix design used in the Work.
 4. Contractor shall provide notification of the time and location where each trial mix will be prepared and/or tested.
- B. Concrete Mix Requirements: Proportions for each mix shall provide for homogeneous, cohesive, workable and dense concrete, suitable in all respects for its intended purpose. Concrete mixes shall be selected to provide for requirements not less than those required by Table 2.1-1. All concrete shall have a maximum shrinkage of 0.04% at 28 days when tested in accordance with ASTM C157, 7-day moist cure. See Article 2.1.G.

TABLE 2.1-1

Nominal Strength f'c @ 28 days	Type of Concrete	Minimum Cementitious Content	Maximum Water- Cementitious Material Ratio Note 3
psi (MPa) Note 1		Lbs. Per CY (Kg per CM) Note 2	
5000 (34)	normal weight	635 (377)	0.42
5000 (34)	silica fume	635 (377)	0.42
4000 (28)	normal weight	540 (320)	0.50
4000 (28)	lightweight	560 (356)	Note 4
3000 (21)	normal weight	480 (285)	0.60
2000 (14)	lean concrete	300 (178)	Note 4
Slab Concrete 4000 (28)	nw, slab on ground and topping slab (interior)	575 (340)	0.50
	(exterior)	610 (360)	0.45

Note 1: f'c in accord with ACI 318 Articles 5.3.2 and 5.3.3.

Note 2: Minimum cementitious means total weight of cementitious material as permitted by this Specification (cement, slag, fly ash, and silica fume).

Note 3: Maximum water-cementitious material ratio will be reviewed for conformance to ACI 318 paragraph 5.3.3.2 (f). Field documented mix designs shall be responsive to this requirement.

Note 4: Maximum water content, minimum cement content and maximum allowable slump shall be those reported in the accepted mix design.
f'c at 56 days

Note 5: Concrete mix shall achieve minimum Modulus of Elasticity (MOE) indicated.

Note 6: Actual strength may be greater than the listed values as necessary to achieve MOE.

Note 7: All concrete exposed to chlorides or sulfates in water, soil, or spray zones, or exposed to deicer chemicals shall have a maximum water-cementitious ratio of 0.40 (minimum f'c of 5000 psi or 34 MPa at 28 days).

All concrete exposed to water shall have a maximum water-cementitious ratio of 0.45 (minimum f'c of 4500 psi or 31 Mpa at 34 days) to provide low-permeability.

- Each mix shall be proportioned to fulfill the water-cementitious material ratio at the maximum permitted slump. In designing the mix, the size and the form of the structure, the dimension and density of reinforcement and cover should be taken in consideration.
- Contractor may use fly ash or other pozzolans to replace not more than 30% by weight, pound for pound, of required cement. Contractor may use slag to replace not more than 40% by weight, pound for pound, of required cement. Fly ash or slag may not be used to substitute for cement conforming to ASTM C 595, (i.e., for pozzolan modified cement). Silica fume may be used to replace not more than 10% by weight, pound for pound of required cement. The total amount of fly

- ash and other pozzolans, slag, and silica fume shall not exceed the limits of ACI 318 Table 4.4.2 for concrete exposed to deicing chemicals.
3. Use admixtures as required by this Specification and as recommended by admixture manufacturer for the specific climatic conditions at the time of placement.
 4. Slump of less than 3 inch (75 mm) at point of discharge will not be permitted except where allowed specifically in this Specification.
 5. Slab on ground and topping slab concrete shall be macro synthetic fiber reinforced concrete. Minimum dosage shall be 4 lbs/cy unless otherwise noted.
- C. Air-Entrainment: Concrete shall be air-entrained in accord with Table 2.1-2 except that entrained air is not required for concrete for footings, interior slabs on ground to receive steel troweled finish, piling or pile caps where such concrete will not be subject to freeze/thaw. Lightweight concrete shall be air-entrained in accordance with Table 2.1-2 except that the entrained air shall be no less than 4% and no greater than 7% to meet U.L. fire resistance rating requirements.

TABLE 2.1-2

TOTAL AIR CONTENT*		
Maximum Aggregate Size No.**	Maximum Nominal Size	Required Air Content (Percent)
# 467	1-1/2 (38 mm)	4.5 + 1.5
# 57	1 (25 mm)	5.0 + 1.5
# 67	3/4 (19 mm)	6.0 + 1.5
# 7	1/2 (13 mm)	7.0 + 1.5
# 8	3/8 (10 mm)	8.0 + 2.0
* Interior slabs on ground, to receive steel troweled finish, shall have an air content not to exceed 2.0% ± 1%. No air entraining admixture permitted.		
** Size designations per ASTM C 33 or C 330.		

- D. Slump and Slump-Flow: Concrete that is not self-consolidating shall be proportioned and produced to provide slump, at the point of delivery into the work, as tabulated in Table 2.1-3. A tolerance of not more than 1 inch (25 mm) additional will be allowed for one batch within each five consecutive batches of each mix design.

TABLE 2.1-3

Type of Concrete	Maximum Slump inches *
Normal Weight	4 (100 mm)
Pea Gravel	4 (100 mm)
Lightweight	4 (100 mm)
Lightweight Pea Gravel	4 (100 mm)
Slab on Ground	4 (100 mm)
Topping Slab	3 (75 mm)
Pumped	Note 1

* Increased slump may only be achieved by the used of the specified HRWR admixture.

Note 1: All pumped concrete shall contain the specified HRWR admixture. Slump loss shall not be more than 2" from the pump to the point of deposit.

- E. Water-Reducing Admixture shall be incorporated into all concrete (not required for mixes designed for superplasticized and self-consolidating concrete) at a minimum dosage of 3.5 fluid ounces per CWT (230 cm³/100 kg) of cement, in strict conformance with manufacturer's directions. Contractor shall consult with admixture manufacturer and shall propose increased dosage rates as appropriate to achieve optimum workability, cohesiveness and uniformity of concrete mixtures as placed in the Work.
 1. Use non-corrosive, accelerating admixture in concrete slabs and in other thin concrete work where concrete is placed at ambient temperatures below 50°F (10°C).
- F. Superplasticized (HRWR) Concrete: Use in all pumped concrete and concrete with a water/cementitious ratio below 0.50 and in all locations where required to meet the requirements of the contract documents. Prepare with a high-range, water-reducing admixture (HRWR). Contractor's mix design shall also include written descriptions of Contractor's methods for mixing, placing and conveying concrete and shall also include design procedures to be used for the formwork.
 1. HRWR mixes may be prepared to provide concrete with 9-inch (225 mm) maximum slump and intended slump of 8.0 +1 inch (200±25 mm) in lieu of the slump maximums specified herein, while adhering to the water-cementitious material ratio maximums specified. Alternatively, HRWR admixture may be used to provide concrete mixtures conforming to the specified maximum slump and water-cementitious material ratio values.
 2. HRWR admixtures shall be incorporated into the concrete mixtures at the batch plant or in the field through an approved dispensing unit. Water content of this concrete will be verified on the job site by use of the specified microwave test.
 3. Self-consolidating concrete shall always use a high-range, water-reducing admixture.
- G. Drying Shrinkage Limitations: All concrete placed above grade, except footings and grade beams:
 1. Prior to placement of concrete, a trial batch of mix designs requiring shrinkage control shall be prepared using aggregates, cement and admixtures proposed for each class. From each trial batch, at least 3 specimens for determining the Drying Shrinkage shall be prepared in addition to 6 compression test specimens.

2. The Drying Shrinkage specimens shall be 4 x 4 x 11 inch (100 x 100 x 280 mm) prisms, fabricated, moist cured, air dried and measured in the manner provided in ASTM C 511 and as modified herein. Specimens shall be air dried after moist curing for 7 days and shall be measured at an age of 14, 21, 28, and 35 days. The effective gauge length of the specimens shall be 10 inches (254 mm).
 3. Compression test specimens shall be fabricated, cured and tested in accordance with ASTM C 192. Three specimens shall be tested at an age of 7 days and three at the age of 28 days.
 4. During construction, Drying Shrinkage specimens of each shrinkage class of concrete will be taken to insure continued compliance with these Specifications. For each shrinkage class of concrete, at least one set of three specimens will be taken from each 1000 cubic yards (765 cubic meters) of concrete placed, but in no case less than three sets of specimens (i.e., nine specimens) will be taken for each class.
 5. The average Drying Shrinkage of the laboratory test specimens after 28 days of drying shall not exceed 0.040 percent or 0.020 percent where noted in the Contract Documents. Considering the variations in concrete properties and in testing, a tolerance of 30 percent in the above figure will be accepted for field cast specimens.
- H. Water-Cementitious Material Ratio: Calculate water-cementitious material ratio by dividing the weight of total free water (including water found in each admixture) in the concrete, per unit volume, by the number of pounds of cementitious material per unit volume. Total free water shall be taken as the total free water content of the mix when proportioned to produce the maximum allowable slump. Cementitious material is defined as cement, silica fume, fly ash and other natural pozzolans, and blast furnace slag. Water-cementitious material ratio shall be the decimal rounded to two significant figures obtained by dividing the total free water weight per cubic yard (meter) by the total weight of cementitious material per cubic yard (meter).
- I. Lightweight Concrete shall be measured in accordance with ASTM C 567, shall provide an air-dry unit weight of not less than 110 pcf (1760 kg/cubic meter) nor more than 115 pcf (1840 kg/cubic meter), and shall have a maximum fresh unit weight of 120 pcf (1922 kg/cubic meter). All measurements shall be taken at points of discharge into the Work. Shrinkage shall not exceed 0.03 percent at 28 days when measured in accord with ASTM C 157.
1. Lightweight concrete trial mixes shall be tested for splitting tensile strength in accordance with ASTM C 496. Acceptable mixes shall provide a splitting tensile strength of not less than $5.7 \sqrt{f'_c}$ ($0.5 \sqrt{f'_c}$ metric). Splitting tensile strength test results will be used in evaluating the acceptability of proposed mix designs and, except where requested by Architect or by Construction Manager, need not be determined for production concrete.
- J. Cement Grout shall be composed of 1 part Portland cement and 3 parts fine aggregate, by volume, with minimum water to produce a stiff, but workable mix.
- K. Source Changes: Should the source of an ingredient change, for any of the concrete products specified herein, Contractor shall redesign the affected mix and shall resubmit, all prior to incorporating such material into the Work.
- L. Test Report Requirements: Contractor's test reports and Testing Agency test reports shall be prepared in a format as given in this Specification.
1. Mixes shall be designated by a number (Mix No. 1, Mix No. 2,...etc).
 2. Individual samplings of a particular mix shall be designated by a number, with the first sample given the number 100 (Sampling 100, Sampling 101,...etc).
 3. Test cylinder numbers shall be provided using the sample number and a letter (102A, 102B,...etc).

4. Contractor's Professional Engineer licensed in the project's jurisdiction shall review and shall sign each concrete test cylinder report indicating that the test shows conformance with the requirements of the Contract Documents.
5. Deviations from project requirements shall be identified clearly by circling non-conforming data and by overprinting in 1/2 inch (13 mm) high red letters "NON-CONFORMING."

SPACE FOR LABORATORY LETTERHEAD

REPORT OF CONCRETE COMPRESSIVE STRENGTH TESTS ♣U.S.♣

♣ SPACE FOR JOB TITLE ♣

FIELD DATA: Date: _____ Time: _____ Normal Wt. () Lightweight ()

Contractor: _____ Placement _____

Concrete Supplier: _____ Locations _____

Conveyance Method:
Bucket() Pump() Chute() Buggy() Tremie() Other _____

MIX NUMBER: _____ Cylinder Field Cure Data _____ Technician's Name: _____
Slump, inches _____ Time, days _____
Air Content, % _____ Min Temp, °F _____ Tests by: _____
Concrete Temp, °F _____ Max Temp, °F _____
Ambient Temp, °F _____ Curing Box () _____ Cylinders by: _____
Fresh Unit Wt, pcf _____ Other _____

MIX PROPORTIONS:	Batch Quantities Per Cubic Yard	Materials and Sources
Cement	(lb) _____	_____
Water - Batched	(gal) _____	_____
Water - Added	(gal) _____	_____
Fine Aggregate	(lb) _____	_____
Coarse Agg.	(lb) _____	_____
Admixture	(fl. oz) _____	_____
Admixture	(fl. oz) _____	_____
Fly Ash or Slag	(lb) _____	_____
Silica Fume	(lb) _____	_____
Chloride Ion	(%by wt.of cem) _____	_____
Macro Synthetic Fibers	(lb/cy) _____	_____

TEST RESULTS:				
Cylinder Number	Cylinder Weight	Age (Days)	Comp. Strength (psi)	Split Strength (psi)
Specified:				

Remarks

For lightweight concrete: _____ P.E.
Air-dry weight per ASTM C 567 _____ Pcf. Seal and Signature

2.2 CONCRETE INGREDIENTS

- A. Cement: Provide an accepted, single source, standard brand Portland cement, conforming to ANSI/ASTM C 150, Type I, II or III or ANSI/ASTM C 595, Type IP. Cement shall be from a single domestic source.
1. Use Type I or Type II cement except where another cement is herein specified and except where permitted.
 2. High-early strength, Type III, or other special cement, may be used in the Work only where permitted. The specified non-chloride admixture may be used.
 3. For Slabs-on-Ground Concrete, provide ANSI/ASTM C 150, Type I or II, from a single domestic source.
- B. Aggregate: Fine and coarse aggregates shall be regarded as separate ingredients. All aggregates shall meet the requirements listed below except that, where accepted by Building Code, non-conforming aggregates will be considered in accordance with the provisions of the Contract Documents.
1. Coarse Aggregate: shall conform to ANSI/ASTM C 33, and shall consist exclusively of sound and durable gravel or crushed stone, having clean, uncoated, hard and strong particles, free from soft, thin, elongated or laminated particles, and from deleterious materials such as alkali, organic, soft or expansive matter. ASTM Grade Size #67 (19 to 4.8 mm), #57 (25 to 4.8 mm) or #467 (37 to 4.8 mm). Aggregates in excess of 3/4 inch (19 mm) shall not be used except in footings and pile caps, except where required specifically by this Specification or by the Drawings and except where accepted in writing. Water absorption of dry aggregate shall not exceed 1 percent.
 2. Lightweight Coarse Aggregate: shall be a rotary kiln product of expanded shale or slate, conforming to ANSI/ASTM C 330, ASTM Grade Size #67 (19 to 4.8 mm) or ASTM Grade Size #8 (9.5 to 2.4 mm), and shall conform also to all requirements for Coarse Aggregate.
 3. Fine Aggregate: shall conform to ANSI/ASTM C 33, consisting exclusively of natural sand or crushed stone screenings, having clean, uncoated, hard and strong particles, free from clay, shale, lumps, salt and flaky particles, and from deleterious materials such as alkali, organic, soft or expansive matter. Fine aggregate shall be evenly graded from fine to coarse, with a fineness modulus not less than 2.30, nor more than 3.10.
 4. Combined aggregate gradation for slabs and other designated concrete shall be 8% - 18 % for large top size aggregates (1 ½ in.) or 8% - 22% for smaller top size aggregates (1 in. or ¾ in.) retained on each sieve below the top size and above the No. 100.
 5. Concrete Topping: Coarse aggregate shall conform to ANSI/ASTM C 33 or C 330 as appropriate, ASTM Grade Size #7 or #8 (12 mm to 4.8 mm or 9.5 mm to 2.4 mm) and shall conform also to all requirements for Coarse Aggregate given above. Fine aggregate shall conform to all requirements for Fine Aggregate as given above.
 6. Cement Finish: Aggregates shall be graded from 1/8 (3 mm) to 3/8 inches (10 mm), with not less than 95 percent of aggregate weight passing the 3/8 inch (10 mm) sieve.
 7. For concrete exposed to view, provide both coarse and fine aggregates from a single, uniform source.
 8. Cleanliness of Aggregate: Aggregates shall have a minimum C.V. (cleanliness value) and a minimum S.E. (sand equivalent) of 75.0. Three samples shall be taken from the weight hopper and the average of the results of the three individual tests shall be the accepted value. Tests shall be taken throughout the course of the Work. Deviation from the accepted value will be the cause of rejections of the material.

- C. Water: Mixing water for concrete shall be clean, fresh, free from injurious amounts of oil, acid, alkalis, salts, organic materials and other deleterious materials and shall conform to ASTM C1602. Antifreeze agents may not be used unless accepted in writing. In case of uncertainty, water shall be potable.
- D. Admixtures listed below by name and by brand are accepted for use in the Work. Other admixtures will be considered for use but are subject to acceptance. Admixtures contributing to chloride, fluoride, sulfide or nitrate ions, or to other substances detrimental to the ingredients of the concrete or to reinforcing steel, will not be permitted in the Work.
1. Water-Reducing Admixture shall conform to ASTM C 494, Type A.
 - a. Pozzolith 322-N or Polyheed 997, by BASF.
 - b. WR-91, or Plastol Series, by Euclid Chemical Co.
 - c. Plastocrete 161 or Sikament HP, by Sika Corp.
 - d. WRDA with HYCOL or Daracem 55, by W.R. Grace Construction Products.
 - e. Other accepted admixture.
 2. Retarding Admixture shall conform to ASTM C 494, Type B.
 - a. Delvo ESC, by BASF.
 - b. Eucon Retarder 100, by Euclid Chemical Co.
 - c. Other accepted admixture.
 3. Non-corrosive, Non-Chloride Accelerator: The admixture shall conform to ASTM C 494, Type C or E, and not contain more chloride ions than are present in municipal drinking water. The admixture manufacturer must have long-term non-corrosive test data from an independent testing laboratory (of at least a year's duration) using an acceptable accelerated corrosion test method such as that using electrical potential measures. Type C Admixtures are:
 - a. Pozzutec 20+, by BASF.
 - b. Accelguard 80, 90 or NCA by Euclid Chemical Co.
 - c. Sika Rapid-1, by Sika Corp.
 - d. Polarset, by W.R. Grace Construction Products.
 - e. Other accepted admixture.
 4. Water-Reducing, Retarding Admixture shall conform to ASTM C 494, Type D.
 - a. Pozzolith 100 XR or 300 R, by BASF.
 - b. Eucon Retarder 75 or 100, by Euclid Chemical Co.
 - c. Plastiment or Plastocrete 161MR, by Sika Corp.
 - d. Daratard 17, by W.R. Grace Construction Products.
 - e. Other accepted admixture.

5. Non-Corrosive, Water-Reducing, Accelerating Admixture shall conform to ASTM C 494, Type E.
 - a. Polyheed FC100, by BASF.
 - b. Accelguard 80, 90, or NCA, by Euclid Chemical Co.
 - c. Plastocrete 161FL, by Sika Corp.
 - d. Other accepted admixture.
 6. High-Range Water-Reducing Admixture (Superplasticizer) shall conform to ASTM C 494, Type F.
 - a. Rheobuild 1000, by BASF.
 - b. Eucon 37/1037, or Plastol Series by Euclid Chemical Co.
 - c. Sika ViscoCrete 2100, by Sika Corp.
 - d. ADVA 140M, by W.R. Grace Construction Products.
 - e. Other accepted admixture.
 7. High-Range Water Reducing, Retarding Admixture (Superplasticizer) shall conform to ASTM C 494, Type G.
 - a. Eucon Retarder 75, by Euclid Chemical Co.
 - b. Daracem 100, by W.R. Grace Construction Products.
 - c. Other accepted admixture.
 8. Air-Entraining Admixture shall conform to ANSI/ASTM C 260.
 - a. Micro-Air or MB AE 90, by BASF.
 - b. AEA-92 or Air Mix, by Euclid Chemical Co.
 - c. Sika AER or Sika AEA-15, by Sika Corp.
 - d. Daravair 1000 or Darex II AEA, by W.R. Grace Construction Products.
 - e. Other accepted admixture.
 9. Prohibited Admixtures: Calcium chloride thiocyanates and admixtures containing more than 0.05% chloride ions are not permitted
 10. Calcium Nitrite Based Corrosion Inhibitor Admixture shall contain a minimum of 30 percent of calcium nitrite by weight.
 - a. Rheocrete 222+, by BASF.
 - b. Eucon CIA, by Euclid Chemical Co.
 - c. DCI S, by W.R. Grace Construction Products.
 - d. Other accepted admixture.
- E. Chloride Ion: It is understood that certain admixtures do contain a concentration of calcium chloride. Design mix shall contain a summary of total calcium chloride concentration, including the content of admixtures. Total concentration in excess of that listed in ACI 318 Table 4.4.1 will be rejected without

further review. Concentrations less than those listed in ACI 318 Table 4.4.1 may be accepted where, in the sole opinion of Construction Manager or of Architect, such concentration will not be detrimental to the Work. The amount of calcium chloride shall be determined by the method described in ASTM C 1218.

- F. Fly Ash shall conform to ASTM C 618, Class C or F except that loss on ignition shall not exceed 3 percent and maximum percentage retained on the #325 (45 µm) sieve shall not exceed 20 percent. Fly ash shall be from a single, accepted source.
- G. Natural Pozzolans, such as calcined clay, calcined shale, and metakaolin, shall conform to ASTM C618, Class N.
- H. Silica Fume (microsilica) shall contain a silicon dioxide (SiO₂) content not less than 92%, shall be of either dry densified or slurried form, conforming to ASTM C 1240, and shall come from a single, accepted source:
 - 1. Rheomac SF 100, by BASF.
 - 2. Eucon MSA, by Euclid Chemical Co.
 - 3. Sikacrete 950DP, by Sika Corp.
 - 4. Force 10,000D, by W.R. Grace Construction Products.
 - 5. Other accepted microsilica based admixture.
- I. Blast Furnace Slag shall conform to ASTM C 989, Grade 120.
- J. Fibrous Reinforcement shall conform to ASTM C 1116 Type III.
 - 1. Synthetic Macro-Fibers: Structural fibers shall be a coarse monofilament, self-fibrillating, polypropylene/ polyethylene blend in accordance with ASTM C1116, Paragraph 4.1.3, Type III. Structural fiber shall have a minimum tensile strength of 73 to 80 ksi and a minimum length of 1.5 inches. To be used for topping slabs and slabs-on-ground
 - a. Tuf-Strand SF, by Euclid Chemical Co.
 - b. Strux 90/40, by W.R. Grace Construction Products.
 - c. Other accepted fiber reinforcement.
 - 2. Fibrous reinforcement used for secondary reinforcement of concrete slabs shall be fibrillated polypropylene fibers.
 - a. Fiberstrand F, by Euclid Chemical Co.
 - b. Fibercast 510 or Novamesh 950, by Fibermesh Inc.
 - c. Super-Net, by Forta Corp.
 - d. Other accepted fiber reinforcement.
 - 3. Fibrous reinforcement used to reduce early plastic shrinkage cracking shall be monofilament polypropylene or nylon fibers.
 - a. Fiberstrand 100, by Euclid Chemical Co.
 - b. Fibermesh 300, by Fibermesh Inc.
 - c. Mighty-Mono or Nylo-Mono, by Forta Corp.

- d. Nycon Fibers, by Nycon.
- e. Grace Fibers, by W.R. Grace Construction Products.
- f. Other accepted fiber reinforcement.

2.3 FORMWORK MATERIALS

A. Form Contact Faces:

1. For Surfaces Not Exposed To View:

- a. Lumber shall be stress grade lumber described and used in accord with the National Design Specification for Wood Construction. Lumber shall be dressed on three sides and ends for a tight fit.
- b. Plywood for formwork shall be in accordance with U.S. Product Standard PS-1, Structural 1 "B-B (Concrete Form) Plyform", Exterior Grade, mill oiled and edge-sealed, not less than 9/16 inch (14 mm) thick. Field cut edges shall be resealed with a solvent-based sealant. Each piece shall bear the legible inspection trademark.
- c. Chamfer Strips for outside corners in forms may be of wood, metal or PVC at Contractor's option. Rubber chamfer strips may be used only where not exposed to view.

2. For Surfaces Exposed to View and for Multiple Reuse Applications:

- a. Plywood for formwork shall be in accordance with U.S. Product Standard PS-1, Structural 1" B-B (Concrete Form) Plyform", Douglas Fir, Exterior Grade, High Density Overlay (HDO) thermo-set resin-impregnated, mill oiled and edge-sealed, not less than 9/16 inch (14 mm) thick. Field cut edges shall be resealed with a solvent-based sealant. Each piece shall bear the legible inspection trademark. Provide Pourform-HDO by Savona Specialty Plywood, or other accepted form.
- 3. Forms for Round Columns and Curved Walls shall be metal, fiberglass, or cardboard, free of horizontal seams and with a smooth, uniform finish. Discontinuities, bulges or depressions, will not be allowed. Joints shall be tight, flush and true. Provide two-piece round column forms by Molded Fiber Glass Concrete Forms Co.; Structural Contours, Inc.; Symons Corp., or other accepted form.
- 4. Form Gaskets (for sealing form panel joints): Gaskets shall be closed cell, completely skinned, foam rubber or neoprene, with pressure sensitive paperbacked adhesive on surfaces to be bonded to forms. Gaskets shall be of sufficient thickness, widths, and compressibility for specific use.
- 5. Reveal Formers and Reformers: Sealed (polyurethane) milled fir (dressed and sanded), for straight reveals; and or extruded or molded vinyl, rubber or neoprene of 75 Durometer hardness for special and circular profiles, as required. Reformers shall be reveal strips specified with gasket applied between reveal and concrete.

C. Form Ties:

- 1. For Surfaces Not Exposed to View: Ties shall be of standard manufacture, factory fabricated, designed specifically for use in concrete formwork. Non-fabricated wire and similar accessories shall not be used. Sizes shall be appropriate for the wall, beam, or other element formed. Ties shall be readily removable leaving no metal within 1 inch (25 mm) measured from the concrete surface and shall be free of lugs, cones, washers, or other devices that will leave a hole larger than 1 inch (25 mm). Use Williams Form Engineering Corp. or Dayton Superior coil ties, with cones or accepted snap ties with cones, except where ties of another design or manufacture are accepted.
- 2. Typical formwork for columns and for shallow, i.e. 30 inch (750 mm), spandrel beams shall be designed so that ties are not required.

- D. Other: Formwork materials not given herein or identified in Drawings shall be subject to acceptance.

2.4 REINFORCEMENT MATERIALS

- A. Reinforcing Bars, Column Ties, etc.: Except where more stringent requirements are given in the Drawings or required by Building Code, provide ASTM A 615, new billet steel, deformed. Rail, axle, or rerolled steel shall not be used.
1. Provide Grade 60 unless otherwise given in the Drawings or in this Specification.
 2. Where welding to structural steel, provide ASTM A 706, Grade 60.
 3. Steel wire shall conform to ASTM A 82, plain, cold-drawn steel.
- B. Welded Steel Wire Fabric: ANSI/ASTM A 497 (deformed wire) for sizes D4.0 and larger and A 185 (plain wire) for sizes less than W4.0, produced by a domestic manufacturer, with a minimum tensile strength not less than 70,000 psi (480 MPa). Provide, deliver and store as flat sheets only; rolls will not be permitted.
- C. Epoxy-Coated Reinforcement and their Supports shall be subject to all applicable portions of this Specification and, in addition, shall be subject to the following:
1. Epoxy-coated reinforcement shall conform to ASTM A 775 and to ASTM A 615 or A 706 as appropriate; welded wire fabric shall conform to ASTM A 884, Class A and to ASTM A 497 or A 185.
 2. Acceptable manufacturer shall be in possession of current CRSI coating plant certification.
 3. Bar and mesh supports shall be manufactured from a dielectric material or shall be wire bar supports coated with a dielectric material such as epoxy or vinyl, compatible both with the concrete and with the epoxy coating. Coating of wire bar supports shall cover the entire bar support. Metal may not extend closer than 5/8 inch (16 mm) to the concrete surface and color of coating shall match that of the finished concrete.
 4. Tie wire shall be nylon coated.
 5. Proprietary combination bar clips and spreaders used in walls shall be non-corrosive, compatible both with the coating and with the concrete.
- D. Deformed Bar Anchors shall be ASTM A 496 deformed bars prepared for stud welding in accordance with AWS D1.1. Material shall conform to AWS D1.1, Chapter 7, Type C. Accepted manufacturer is the Nelson Stud Welding Division of TRW or other accepted manufacturer. Provide 1/2 inch (12 mm) diameter, 36 inch (915 mm) long bars, unless otherwise given in drawings.
- E. Tie Wire: 18 gauge (1310 μ m) or heavier, black annealed wire, conforming to ANSI/ASTM A 82. Tie wire in concrete at exposed surfaces shall be non-corrosive; stainless steel, monel, or plastic coated.
- F. Bolsters, Chairs, Spacers, and other devices for spacing supporting and fastening reinforcing bars and welded wire fabric:
1. Accessories shall be all-plastic or shall be plastic coated metal. Metal may not extend closer than 1/8 inch (3 mm) to concrete surface. Plastic color shall match finished concrete color. Conform to CRSI requirements.
 2. For concrete surfaces exposed to view, bar supports shall be CRSI, Class 1 (plastic protected) or CRSI, Class 2 (stainless steel protected). Acceptable manufacturers are Dayton Superior, or other accepted manufacturer.
 3. Precast concrete blocks furnished for reinforcement support shall be produced specifically for intended purpose; brick, stone, wood and other materials will not be permitted. Precast concrete

blocks three inches (75 mm) or larger shall have the same compressive strength as the structural concrete in which they are used. Precast blocks smaller than three inches (75 mm) shall be 6,000 psi (41 MPa) at time of use.

4. For slabs-on-ground, use precast concrete blocks or supports with base plates or with horizontal runners at all locations where base materials will not properly support the legs of chairs.
 5. Mesh reinforcing for slabs on metal deck may be pulled up, in place, as the casting of concrete progresses. Mesh supports, where required, shall be by Dayton Superior, or other accepted manufacturer.
- G. Beam and Column Caging Clips shall be not less than 12 gauge (2750 μ m), galvanized, of the adjustable type to maintain the wire 1 inch (25 mm) clear of the steel. Hohmann & Barnard, or other accepted clip.

2.5 MISCELLANEOUS MATERIALS

- A. Non-Shrink Grout shall be natural aggregate grout pre-mixed and bagged by manufacturer. Non-shrink grout shall conform to ASTM C 1107 Grade B or C when tested at a fluid consistency of less than 30 seconds per ASTM C 939 at temperature extremes of 40°F and 90°F (7°C and 32°C) and an extended working time of 30 minutes. The corresponding minimum compressive strength of the grout at 28 days, based on ASTM C 942, shall be 7500 psi. The grout shall exhibit no measurable bleed when tested in accordance with ASTM C 940.
1. Sure-Grip High Performance Grout, by Dayton Superior.
 2. Hi-Flow Grout, by Euclid Chemical Co.
 3. Five Star Fluid Grout 100, by Five Star.
 4. Masterflow 928 Grout, by MBT Technologies and Repair.
 5. Other where accepted.
- B. Epoxy Grout shall be non-shrink, 100% solids, 3-component, moisture tolerant grout.
1. E3-F, by Euclid Chemical Co.
 2. Five Star Epoxy Grout, by Five Star.
 3. Masterflow 648 CP, by MBT Technologies and Repair.
 4. Sikadur 42, by Sika Corp.
 5. Other where accepted.
- C. Bonding Admixture shall be Latex type, non-redispersable, modified sand cement mortar conforming to ASTM C 1059, Type II.
1. Day-Chem Ad Bond, by Dayton Superior Corp.
 2. Flex-Con or SBR Latex, by Euclid Chemical Co.
 3. Everbond, by L&M Construction Chemicals, Inc.
 4. Strong Bond, or Sure Bond (EVA), by Symons Corp.
 5. Other where accepted.

- D. Epoxy Adhesive shall conform to ASTM C 881, and shall be a two-component, 100% solids material, suitable for use on both dry and wet surfaces. Acceptable materials:
1. Sure-Anchor Epoxy, by Dayton Superior Corp.
 2. Dural #452 Series or Duralprep AC, by Euclid Chemical Co.
 3. Concreseive Standard Paste LVI, by MBT Technologies and Repair.
 4. Sikadur 32 Hi-Mod or Sikadur 32 Hi-Mod LPL, by Sika Corp.
 5. Rezi-Weld 1000, by W.R. Meadows, Inc.
 6. Other where accepted.
- E. Polymer Repair Mortar: These patching mortars may be used when color match of the adjacent concrete is not required. Prior approval by the Structural Engineer is required.
1. Polyfast FS, by Dayton Superior.
 2. Thin Top Supreme or Concrete Top Supreme (horizontal repairs), Verticoat or Verticoat Supreme (vertical and overhead repair), by Euclid Chemical Co.
 3. Sikatop 121 & 122 (horizontal repair), Sikatop 123 (vertical and overhead repairs), by Sika Corp.
 4. Other where accepted.
- F. High Strength Flowing Repair Mortar for forming and pouring structural members, or large horizontal repairs, provide the flowable one-part, high strength microsilica modified repair mortar with 3/8" aggregate. The product shall achieve 9000 psi @ 28-days at a 9-inch slump.
1. Eurocrete, or Euco Speed MP (Cold Weather) by Euclid Chemical Co.
 2. Polyfast LPL, by Dayton Superior.
 3. Emaco S77 CI, by MBT Protection and Repair.
 4. Other where accepted.
- G. Fusion Bonded Epoxy Coating shall conform to ASTM A 775. Acceptable manufacturer is ScotchKote 413 by 3M, or other where accepted.
- H. Patching Material for Epoxy Coated Reinforcement shall be ScotchKote 413/215 PC Patch Compound by 3M or other accepted patch material.
- I. Drill-In Anchors shall be wedge-type. Capsule-type will not be permitted. Drill-in anchors shall be standard wedge-type unless otherwise noted. Drill-in anchors designated in the Drawings as carrying a direct tensile load shall be undercut wedge-type.
1. Standard Wedge-Type Anchors:
 - a. DFS Wedge Anchor, by Diversified Fastening Systems Inc.
 - b. Kwik Bolt III and TZ, by Hilti Corp.
 - c. Trubolt Wedge, by ITW Ramset/Red Head.
 - d. Power-Stud, by Powers Fasteners Inc.

- e. Other where accepted
- 2. Torque Controlled Wedge-Type Anchors:
 - a. HSL III Heavy Duty Sleeve Anchor, by Hilti Corp.
 - b. Wedge Anchor BoA-K, by Liebig Safety Bolts.
 - c. Power-Bolt, by Powers Fasteners Inc.
 - d. R1S or R7S Spin-Lock Anchors, by Williams Form Engineering Corp.
 - e. Other where accepted

Material for standard and torque controlled wedge-type anchors shall conform to ASTM A 325, F-S-325 Group II or SAE-J429 Grade 5 with nuts and washers as specified herein for A325 bolts.
- 3. Undercut Wedge-Type Anchors:
 - a. Maxi-Bolt, by Drillco National Group.
 - b. HDA Undercut Anchor, by Hilti Corp.
 - c. Ultraplus, by Liebig Safety Bolts.
 - d. S-9 Undercut Anchor, by Williams Form Engineering Corp.
 - e. Other where accepted

Material for undercut-type anchors shall conform to ASTM A 193 Grade B7 or ISO 898 Class 8.8 with nuts and washers as specified herein for A325 bolts.
- 4. Galvanizing shall conform to ASTM B 695, Class 50 or to ASTM B 633, SC1.
- 5. Stainless steel for studs and washers shall conform to AISI Grade 304 or Grade 316 and to ASTM F 593, Group 1 or Group 2, Condition SH. Nuts shall be of stainless steel conforming to ASTM F 594, Group 1 or Group 2, Condition SH.
- J. Expansion Dowels shall be ASTM A 36 bars or equivalent, hot-dip galvanized, of the size and spacing given in the Drawings, and shall be provided with a suitable expansion shield securely positioned and end filled by readily compressible material assuring adequate expansion space beyond the free end of the dowel.
 - 1. Acceptable Expansion Dowel Basket Assemblies for use in Slab-on-Ground Contraction Joints: Load Plate Basket Assembly by PNA Construction Technologies or other accepted.
 - 2. Acceptable Expansion Diamond-Shaped Load Plates for use in Construction Joints: Diamond Dowel System by PNA Construction Technologies or other accepted.
 - 3. Acceptable Expansion Dowels: Dowel Bars by American Highway Technology of Dayton Superior. Acceptable expansion shields: Metal Dowel Caps by American Highway Technology of Dayton Superior, or other accepted dowel.
- K. Flashing Reglets: Where resilient or elastomeric sheet flashing of bituminous membranes are terminated in reglets, provide 28 gauge (380 µm) minimum thickness stainless steel reglets of type designated in the Drawings, or Type A PVC reglet; fill with butyl rubber sealer so as to make all joints watertight. Temporarily fill reglet or cover face opening to prevent intrusion of concrete or debris.

- L. Waterstops shall be extruded from a virgin poly vinyl-chloride compound meeting all of the requirements set forth in the U.S. Army Corps of Engineers Specification CRD-C-572. Select waterstop based on concrete profile, anticipated joint movement, maximum possible water pressure and placement. Only where the requirements of CRD-C-572 are met, provide the following:
1. Construction Joints: Provide 6" (150 mm) wide dumbbell type or ribbed type.
 - a. Type DB-5 or 11B, by DuraJoint Concrete Accessories.
 - b. Style 746 or 782, by Greenstreak.
 - c. Type M, by Progress Unlimited.
 - d. Number D6-316 or R6-316T, by Vinylex Corp.
 - e. Other where accepted.
 2. Expansion Joints: Provide 9" (230 mm) wide, serrated type with center bulb.
 - a. Type 7BR, by DuraJoint Concrete Accessories.
 - b. Style 696, by Greenstreak.
 - c. Type W-5, by Progress Unlimited.
 - d. Number RLB9-38(Ribbed Center Bulb), by Vinylex Corp.
 - e. Other where accepted.
 3. Hydrophilic waterstop shall consist of 75% sodium bentonite and 25% butyl rubber compound formed into uniform coils. Waterstop to be installed per manufacturer's guidelines using a non-flammable, latex and water based adhesive used to secure hydrophilic waterstops. Locations need be submitted for approval to Structural Engineer and Architect.
 - a. Waterstop-RX, by Colloid Environmental Technologies Company.
 - b. Swellstop, by Greenstreak.
 - c. Expand Tite, by DuraJoint Concrete Accessories.
 - d. Other where accepted.
- M. Polyurethane Sealant shall be Eucolastic I by Euclid Chemical Co., Dymonic by Tremco, Inc., Sikaflex-1a by Sika Corp., or other accepted sealant. Sealant shall conform to ASTM C920. Color shall be accepted by Architect. Backer rod shall be as recommended by sealant manufacturer.
- N. Joint Filler:
1. Unless otherwise noted, use non-staining, non-extruding, compressible and resilient joint filler of sponge rubber conforming to ASTM D 1752, Type I. Joint fillers which contain or have been treated with oil, grease or bituminous materials are prohibited.
 2. Acceptable preformed joint filler: FF-3 Sponge Rubber, by Progress Unlimited, Inc.; Cementone Sponge Rubber, by Tamms Industries; or other accepted filler.
 3. Provide compatible joint sealing compound: See Specification Section 07 90 00.
- O. Cellular Polystyrene shall conform to ASTM C 578, Type IV or better and shall be sufficiently hard and dense and/or shall be sealed so as to preclude completely the dispersing of Styrofoam particles into the

plastic concrete. Acceptable cellular polystyrene: Styrofoam Cavitymate Plus, by The Dow Chemical Co., or other acceptable cellular polystyrene.

- P. Bond Breaker shall be 4 mil (100 µm) thick polyethylene sheet.
- Q. Moisture-Retaining Cover Conforming to ASTM C171: A naturally colored, non-woven polypropylene fabric with a 4-mil non-perforated reflective (white) polyethylene coating containing stabilizers to resist degradation from ultraviolet light. Acceptable Moisture-Retaining Cover: Hydracure S-16 by PNA Construction or Transguard 4000 by Beef Industries.
- R. Vapor Barrier for slab-on-ground shall conform to ASTM E1745, Class B. The vapor barrier shall be placed over prepared base material where indicated below slabs on grade. Lap sealant shall be the manufacturer's recommended bonding material.
 - 1. Moistop Ultra (15 mil) by Fortifiber Corp.
 - 2. Stego Wrap (15 mil) Vapor Barrier by Stego Industries LLC.
 - 3. Perminator Vapor-Mat (15 mil),, by W.R. Meadows, Inc.
 - 4. Vapor Block 15, by Raven Industries.
 - 5. Other accepted barrier.
- S. Crushed Stone:
 - 1. Under slabs-on-ground shall consist of clean, hard, durable, natural rock, free of organic matter, rock dust and other contaminants, and shall be well graded within the requirements of ASTM C 33, Size #467.
 - a. Material conforming to AASHTO Specification M80 will be accepted for use in the Work.
 - 2. Bridging rock where required to span over softer areas of the underlying soils shall consist of a coarse granular mixture of rock fragments having a maximum particle size of 6 inches (150 mm). It is anticipated that quarry run or crusher run materials will be satisfactory. The material shall be well graded between the maximum and minimum sizes with no more than 15 percent passing the U.S. Standard Number 200 sieve (75 µm).
- T. Compactible Fill under slabs-on-ground shall be composed of well graded gravel or crushed stone, 1½" maximum size. "Crusher run" material is satisfactory. Do not use sand except with prior approval of the Architect. Fill shall be free-draining, free from clay, shale, lumps, salt, organic matter, rock dust and other contaminants, and shall consist of hard, clean and durable particles.
- U. Pachometer (reinforcing bar locator): Use James R-Meter by James Instruments or other accepted pachometer.
- V. Spark Tester for testing waterstop splices: Use Spark-Tester by JP Specialties Inc. or other accepted manufacturer.

2.6 SURFACE TREATMENTS

- A. Clear Curing and Sealing Compound VOC Compliant, 350 g/l, shall be a liquid type membrane-forming curing compound, complying with ASTM C 1315, Type I, Class A, 25% solids content minimum. Moisture loss shall be not more than 0.40 kg/m² when applied at 300 sq. ft./gal. Compound shall be compatible with all subsequent finishes and toppings, shall chemically combine fully with the concrete in 30 days or less, shall leave no surface residue, and shall preclude secondary reactions within concrete as well as materials applied to the concrete surface. Manufacturer's certification is required. Subject to project requirements, provide one of the following products:

1. Super Diamond Clear VOX, by Euclid Chemical Co.
 2. Lumiseal WB Plus, by L&M Construction Chemicals, Inc.
 3. Kure 1315, by Sonneborn Products.
 4. Other where accepted.
- B. Dissipating/Non-residue Forming (Strippable) Curing Compound (VOC Compliant, 350 g/l) shall be a liquid membrane-forming compound conforming to ASTM C 309, Type 1 or 1-D that chemically breaks down and wears off after curing is complete. Install in strict accordance with the manufacturer's recommendations. Manufacturer's certification is required.
1. Kurez DR VOX, by Euclid Chemical Co.
 2. L&M Cure R, by L&M Construction Chemicals, Inc.
 3. Kure-N-Harden, by Sonneborn Products.
 4. 1100-Clear Series, by W. R. Meadows, Inc.
 5. Other where accepted.
- C. Evaporation Retarder/Finishing Aid:
1. Eucobar, by Euclid Chemical Co.
 2. E-Con, by L&M Construction Chemical, Inc.
 3. Confilm, by MBT Protection and Repair.
 4. SikaFilm, by Sika Corp.
 5. Other where accepted.
- D. Surface Retarder:
1. A-H Retard Set, by Anti-Hydro International, Inc.
 2. True Etch Surface Retarder, by Burke.
 3. Concrete Surface Retarders, by Euclid Chemical Co.
 4. Rugasol-S, by Sika Corp.
 5. Other where accepted.
- E. Liquid Densifier/Sealer: The liquid densifier compound shall be a silicate based sealer which penetrates concrete surfaces, increases abrasion resistance and provides a "low-sheen" surface that is easy to clean and eases the problem of tire mark removal. The compound need contain a minimum solids content of 20%, of which 50% is silicate.
1. Euco Diamond Hard, by Euclid Chemical Co.
 2. Ashford Formula, by Curecrete Chemical Co., Inc.
 3. Seal Hard, by L & M Construction Chemicals, Inc.

- F. Waterproofing and Chloride Ion Screen: Silane water repellent and chloride ion shield shall contain not less than 40 percent solids and shall provide not less than 90 percent chloride ion screening capability when tested in accordance with NCHRP 244.
1. Weather Worker S-40 J-29 WB, by Dayton Superior.
 2. Euco-Guard VOX, by Euclid Chemical Co.
 3. Hydrozo Silane 40-VOC, by Hydrozo.
 4. Aquapel, by L & M Construction Chemicals, Inc.
 5. Masterseal SL 40 VOC, by MBT Protection and Repair.
 6. Other where accepted.

PART 3 - EXECUTION

3.1 CONTRACTOR'S INSPECTION

- A. Examination of Field Conditions: Examine all surfaces, features and facilities to which Work must be attached or applied, abut or clear. Notify Construction Manager and Architect in writing of all conditions which are or will be detrimental to proper and expeditious installation of Work. Starting of Work shall represent acceptance by Contractor of surfaces and of conditions as suitable and correct for performing Work as specified.
- B. Field Measurements: Contractor shall verify, by measurements at the job site, all dimensions affecting the Work of this Section. Field dimensions at variance with those in accepted Shop Drawings shall be reported in writing by Contractor. Decisions regarding corrective measures shall be subject to acceptance and acceptance shall be obtained before starting fabrication of items affected. The starting of Work shall represent acceptance by Contractor of all dimensions affecting the Work of this Section as suitable and correct for the performing of all Work under this Section.

3.2 FORMWORK

- A. Reference Standards: Formwork shall conform to ACI 347R, except where more stringent requirements are given in the Drawings or in this Specification.
- B. General: Contractor shall be solely responsible for the design, engineering, construction, completeness, safety and adequacy of all concrete formwork. Provide removable formwork for all concrete not indicated specifically to be formed by other means. Provide for anchorages and inserts, blocking, bulkheads, chamfers, keys and keyways, ledges, moldings, offsets, openings, recesses, reglets, screeds and all else to complete the Work.
1. Formwork shall be designed and constructed to withstand all forces imposed upon the formwork including all construction dead and live loads, horizontal loads from equipment, wind and earthquake forces, and forces due to vibration of plastic concrete. Shoring shall be adequate in strength and in position so that loads of successive parts of the structure will be transmitted directly through the falsework without the creation of shearing or bending stresses in the concrete Work. Shoring shall not bear on slabs on ground until such concrete has attained design strength and only where the slab-on-ground is able to accept the imposed loads without distress.
 2. Formwork shall be tight to prevent leakage of mortar from the concrete so as to provide concrete free of honeycombs, shall be of adequate rigidity and strength, and shall be adequately braced to produce true lines, free of bulges and unsightly depressions, to accurate elevations and correct alignments. Joints between form face edges shall be tight and strongly backed to provide joints that are flush and true. Provide inspection of all formwork for conformance with this Specification and with form drawing design, both prior to, during and after concreting.

3. Fabricate for easy removal, without prying or hammering against concrete surfaces. Provide crush or working plates where stripping may damage concrete surfaces.
 4. Provide top forms at all inclined surfaces where slope is too steep to place concrete with bottom form only.
- C. Construction and Erection of Forms:
1. To maintain specified tolerances, camber forms and shores for beams and slabs to compensate for anticipated deflections in the formwork prior to hardening of the concrete; provide additional camber where noted in the Drawings. Camber top surface and set screeds to maintain uniform thickness. Where Drawings do not show specific camber, provide a minimum camber equal to 1/4" (6 mm) for each 15 feet (4600 mm) of span (for flying beams, not supporting slabs or other beams, provide 1/8" (3 mm) for each 15 feet (4600 mm) of span); for cantilever spans, camber 1 inch (25 mm) for each 8 feet (2400 mm) of cantilever. Camber shall be parabolic, tapering from center of span to each support. Set screeds to follow camber so as to maintain a uniform thickness of concrete.
 2. Build into formwork positive means of adjustment (wedges, jacks and the like) of shores and struts and take out all settlements during concrete placement operations. Brace forms securely against lateral forces and to prevent lateral deflections.
 3. Build into the formwork and otherwise make necessary provisions in formwork to accommodate the Work of other Sections of this Specification. Obtain required information and materials from affected trades. Install inserts, sleeves, edge and corner angles, steel frames and the like securely in the formwork to allow sound embedment of their anchorage devices, without displacement, and to provide the required alignment to the formed and finished concrete faces and surfaces. Provide boxouts for items to be provided at a later date. Seal, or fill with readily removable filler all voids in embedded items and sleeves in order to prevent complete or partial filling by intrusion of concrete paste.
 4. Provide material with sufficient thickness so that newly placed concrete does not bow, distort or deflect formwork.
 5. Concrete Surfaces Exposed to View: Form tie spacing and rigidity of formwork shall be sufficient to provide continuous, straight, smooth and true surfaces and edges, visually acceptable. Unsightly joint marks will not be permitted.
 - a. Plywood panels shall be laid out as shown in the Drawings. Where not shown, use full sheets in vertical position with splice seams at the same level, (except at surface ends).
 - b. Joints shall be reinforced so that edges remain flush and true.
 - c. Chamfer exposed corners and edges, whether or not shown in Drawings, to provide tight edge joints and smooth and even lines.
 - d. Design forms, studs and walers to limit deflection between supports and stiffening members to a maximum of 1/360th of the span.
 6. Concrete Surfaces Not Exposed to View: Contractor may use plywood, lumber, metal and other materials included under this Specification.
 7. Reuse of Form Material: Clean thoroughly and repair forming materials prior to reuse. Damaged material which cannot be properly reconditioned to produce Work conforming to this Specification shall be discarded. Formwork may be reused only the number of times which will assure that concrete surfaces produced will meet the provisions of this Specification. Condition of formwork and use or reuse of formwork shall be subject to acceptance. Formwork for architectural concrete which cannot be tightly butted and made mortar-tight shall not be reused. Where reuse of forms is permitted or accepted, withdraw all nails, clean forms, and repair damaged surfaces by

replacement of damaged boards or units. Formwork materials rejected shall be removed promptly from the site.

8. Clean-Out and Access Panels: Provide readily removable and securely replaceable panels in column forms, wall forms, and other types of formwork as needed to permit ready access for cleaning formwork totally free from standing water, dust, dirt and other debris, allow inspection of condition of formwork, reinforcement, and concrete bonding surfaces, and as needed to allow proper access for concrete placement and vibration. Locate removable panels to minimize exposure to view, except where more exposed locations are accepted.
 9. Protect Soft Materials such as Styrofoam from contact by vibrators and other equipment. Evidence of dispersion of such materials into concrete will be considered as evidence for rejection of that concrete.
- D. Cellular Polystyrene panels shall be installed with staggered joints and shall be bonded with adhesives recommended by the manufacturer.
- E. Form Release Treatment: Clean and treat all removable forms with form release agent prior to placing reinforcement and embedded items. Remove excess form release agent and do not allow agent to come in contact with previously placed concrete or reinforcing steel.
- F. Clean and Tighten all forms immediately prior to casting concrete. Retighten formwork after placing concrete to account for concrete shrinkage and the like and to minimize mortar leakage.
- G. Horizontal and Sloped Concrete Surfaces below finish grade which will not be exposed to view, where permitted and where shown in Drawings, may be formed by the use of clean cut trenches in lieu of forms.
1. Provide 3 inches (75 mm) minimum cover to reinforcement at all surfaces formed by earth, rock, or geotextile fabric.
 2. Provide vapor barrier liner at all surfaces composed of uncemented granular materials, geotextile fabric and other materials which readily absorb water.

3.3 FABRICATION AND PLACEMENT OF REINFORCEMENT

- A. Reinforcing Steel shall be Shop Fabricated in strict accord with the Shop Drawings, certificates, and other submitted and accepted data. All Work shall conform to the applicable Standards as given herein and as need apply to the Work. Workmanship shall be of the best practice of relevant trades and shall be performed by skilled mechanics making use of modern tools and equipment which are in good condition. To the extent practical, Work shall be accomplished in the shop and not in the field.
- B. Reinforcing Steel, whether existing or provided under this contract, shall be free from paint, oil, dirt, scale, ice, frost, loose rust, grease, clay or other soil, and other substances or coatings which could reduce bond with concrete.
- C. Placing Reinforcing Steel: Comply with the more severe of ACI, CRSI, Building Code and this Specification.
- D. Reinforcing Bar Supports shall be appropriate to the intended use, of sufficient number, spacing, rigidity and strength to prevent displacement of reinforcing and to hold reinforcing accurately in correct position both before and during concrete placement. Do not place reinforcing bars more than 2 inches (50 mm) beyond the last leg of continuous bar supports. Do not use bar supports as support for runways, conveying equipment or for any purpose other than for supporting reinforcing bars.
1. For concrete surfaces not exposed to view, use plastic or hot-dip galvanized supports.
 2. For concrete surfaces exposed to view, use plastic or plastic-tipped supports.
 3. For slab on ground, use chairs with base plates.

4. Securely tie and support reinforcement to prevent displacement by construction traffic and casting of concrete. Neither top nor bottom bars shall be allowed to sag below tolerances specified by Building Code or required by the Contract Documents. Concrete cover shall be uniformly maintained. Displacement of reinforcing steel and embedded items shall be corrected immediately and additional supports provided to prevent recurrence. Conform explicitly to Article 7.6, ACI 318.
- E. Over Metal Deck, reinforcing steel shall be tied securely and supported prior to placing concrete. WWF placed over metal deck shall be tied securely and may be pulled up to proper position as the casting of concrete progresses.
 1. At Contractor's option, and as one means of minimizing the downward movement of plastic concrete on sloping metal deck, Contractor may fasten WWF to metal deck with TEKS self-drilling fasteners and clips so as to hold WWF firmly in place.
- F. Tie Wires, where applicable, shall be tied to and bent behind bars in such a manner that concrete placement will not force the wire ends toward the exposed concrete surfaces. At exposed concrete surfaces, tie wire ends shall not fall within required clear concrete cover.
- G. Wire Mesh: Lap deformed wire mesh reinforcement at all edges such that the overlap measured between the ends of each fabric sheet is not less than the larger of 8 inches (200 mm), the spacing of the cross wires plus 2 inches (50 mm) and 1.3 times the development length of the deformed wire, unless a larger lap is noted in the Drawings. Unless a larger lap is noted in the Drawings, lap plain wire mesh reinforcement at all edges such that the overlap measured between the outermost cross wires of each fabric sheet is not less than the larger of 6 inches (150 mm), the spacing of the cross wires plus 2 inches (50 mm), and 1.5 times the development length of plain wire. Provide and install in sheet lengths as long as is practical. Wire together adjacent sheets of mesh. Offset end laps not less than the width of the fabric sheet, precluding continuous end laps.
- H. Tack Welding of reinforcing steel bars or mesh is prohibited. Reinforcement damaged by arc strikes or arc welding shall be replaced. Welding of reinforcing bar intersections is prohibited.
- I. Welding and Flame Heating of reinforcing steel is prohibited unless performed in accord with appropriate qualified procedures and detail sketches prepared by Contractor and both submitted and accepted.
- J. Coordination Detailing and Erection: Reinforcement shall be coordinated, detailed and erected to provide a clear passage for the positioning of tremie trunks in required locations. These openings shall be free of bars, bar ends, wire, ties, or obstructions which could hamper insertion and removal of the trunk.
- K. Minimum Size WWF: Provide 6x6-W2xW2 WWF minimum in all concrete fill slabs except where heavier reinforcement is shown explicitly in the Drawings, except where fiber reinforcement is specified, and except for filling of metal pan treads and intermediate platforms which may be 2" x 2", 14 gauge (50 x 50 mm x 2100 µm), galvanized.
- L. Reinforcing Bar Mechanical Connections shall be installed in accordance with ACI 439.3R and manufacturer's printed instructions.
- M. Epoxy-Coated Reinforcement shall be subject to all applicable provisions of this Specification and, in addition, shall be subject to the following provisions:
 1. Cold bend all bars around pins with nylon collars and take other steps required to minimize damage of the coating during fabrication. Hot bending will not be permitted.
 2. Handling and hoisting shall be done with care, making use of nylon lifting slings. Bundles of reinforcement shall be lifted in a manner to prevent abrasions; spreaders shall be used to lift bundles where lifting at third points is not practical. Bundling bands shall be padded or shall be nylon.
 3. Store epoxy-coated reinforcement on padded or wooden cribbing.

4. Reinforcing bars used as support bars for epoxy-coated reinforcement shall be epoxy-coated.
 5. Field bending and field cutting of epoxy-coated reinforcement will not be permitted except where authorized expressly in writing.
 6. Epoxy-coated reinforcement shall be saw cut; flame cutting is prohibited.
 7. Damage to coating on bars exceeding 0.3 inches (8 mm) in any direction shall be repaired in accord with the patching material manufacturer's published instructions. Bars requiring patching in excess of 2 percent of the surface area of that bar shall be rejected and shall be removed immediately from the site.
 8. All damage (i.e., 100%) to coating on weld wire fabric shall be repaired in accord with the patching material manufacturer's published instructions. Welded wire fabric requiring patching in excess of 1 percent of the surface area per linear foot of each wire shall be rejected and shall be removed immediately from the site.
 9. Splicing of epoxy-coated bars shall be by lap-splice or by accepted mechanical couplers.
- N. Macro Synthetic Fibers: Provide where specified for slabs-on-grade, toppings and slabs-on-metal deck. Shall be added at a dosage of 4 lbs/cy or higher as required to achieve a minimum equivalent residual strength f_{e3} of 200 psi when measured in accordance with ASTM C1609.
- O. Concrete Anchors and Deformed Bar Anchors shall be installed in strict accord with the provisions of Section 05 30 00.
1. Where indicated in the Drawings, bend concrete anchors and deformed bar anchors in accordance with the requirements of the Drawings and of this Specification:
 - a. Before automatic stud welding, cold bend concrete anchors and deformed bar anchors as required in accordance with the bend requirements given in the Contract Documents for concrete reinforcing bars of the same diameter. The use of heat to either bend or straighten concrete anchors is not permitted.
 - b. Once bent, the shop straightening of either concrete anchors or deformed bar anchors is not permitted. The field straightening of bars that have been embedded in concrete is not permitted except where accepted specifically.
- P. Lap Splices: Reinforcing bars may be lapped in contact splices wired together or by lap lengths separated by spacing shown or noted in the Shop Drawings or permitted by this Specification.
- Q. Straightening: Once bent, the shop straightening of reinforcing bars is not permitted. The field straightening of bars that have been embedded in concrete is permitted only where authorized specifically.

For field bending, acceptance will require generally that larger bars be heated to 1200°F (700°C) maximum and that concrete be protected by insulation blankets. After straightening, acceptance will require that bars be insulated and cooled slowly.

3.4 JOINTS

A. Construction Joints:

1. Construction joints shall be made and located so as to least impair the strength and appearance of the structure. Construction joints shall be made only at locations shown in the Contract Drawings or accepted specifically. Construction joints shall conform to the Building Code and to ACI 318, Article 6.4. Location of all construction joints not shown in the Drawings shall be submitted for acceptance.
 - a. All construction joints shall be keyed not less than 1-1/2 inches (40 mm) deep. Wood box-outs treated with a form release agent or cellular polystyrene box-outs shall be used for

keying concrete; the chipping of keys after concrete placement as a construction methodology is prohibited. Continue all reinforcing steel across construction joints. Contractor shall supply, fabricate, and place additional reinforcing steel where location of construction joint in any way weakens the construction.

- b. Horizontal construction joints will not be permitted in beams and slabs except where shown in the Drawings. Horizontal construction joints in walls will not be permitted except where shown in the Drawings or in accepted Shop Drawings.
 - c. Where terrazzo, pavers, stone or other overlay finishes are required, locate slab construction joints accurately at locations directly below expansion joints in the overlay material. Waiver of this requirement will not be given except that, for sand-bedded finishes, alternative proposals will be considered.
 - 2. Spacing of Construction Joints: Conform to and do not exceed maximum distance between construction joints as shown or noted in the Drawings and in this Specification. Where no other restriction applies, provide construction joints at a spacing not greater than 33 feet (10 m) joint-to-joint in perimeter walls below grade; 65 feet (20 m) maximum joint-to-joint in perimeter walls above grade and all interior walls, above or below grade. In considering wall joints, a 90 degree corner may be considered a joint. Limitations on construction joint spacing do not apply to slabs on steel deck.
 - 3. Column and Wall Joints: Cast columns and walls to an elevation 1/2 inch + 1/4 inch (13 mm ±6 mm) higher than the lowest abutting girder, beam or slab.
- B. Construction Joints Not Located in Drawings:
- 1. For Cast-In-Situ Beam and Slab Construction: Where construction joints are not located in Drawings, submit proposed locations for acceptance. In general, in areas not specifically shown in Drawings, construction joints shall be located as follows:
 - a. Slabs, Beams and Girders: Within the middle third of a span, unless a beam intersects a girder at this point, in which case the joints in girders shall be offset a distance equal to twice the width of the beam.
 - b. Locate construction joints perpendicular to the main reinforcement.
 - 2. For Slabs on Metal Deck Construction: Locate construction joints parallel to beams and girders, not closer than 6 inches (150 mm) to stud shear connectors.
 - a. Where parallel to supporting beams, locate not more than 1'-8" (500 mm) from the centerline of a supporting beam such that most of the slab span containing the construction joint contains concrete from the first pour.
 - b. Where perpendicular to supporting beams, locate not more than 3'-4" (1000 mm) from the face of the supporting girder such that most of the supporting beam is not concreted in the first pour.
- C. Expansion Joints: Locate and construct as shown or noted in the Drawings. Do not continue reinforcement or conduit through expansion joints. Working width of expansion joints shall be kept free from all extraneous materials. Contractor shall take special care to assure that expansion joints are properly constructed, cleaned, and function properly. Joints shall be cleaned prior to removal of soffit formwork and shall be recleaned just prior to installing finish materials. Take particular care to remove wood, cellular polystyrene and other soft materials from such joints.
- D. Contraction Joints in Bearing Slabs on Ground: Do not provide for slabs subjected to hydrostatic pressure. Locate and construct as shown or noted in the Drawings and as given in Shop Drawings.

1. The Soff-Cut saw shall be used immediately after final finishing and to a depth of 1-1/4". A conventional saw shall be used as soon as possible without dislodging aggregate and to a depth of 1/4 slab thickness. Remove all residue caused by sawing by water blasting immediately after joint is cut.
 2. Contractor may form joint following dimensions provided in the Drawings.
- E. Joint Filler: Joint filler shall be installed where indicated in the Drawings. Joint filler shall be full depth of joint and shall be set flush with exposed concrete surface, except where sealant or a reveal is indicated, in which case the joint filler shall be set back as detailed in the Drawings.

3.5 EMBEDDED WORK

- A. General: Locate, set and build into the Work such embedded items as are required by the Work of this Section and by the Work of other Sections and Divisions of this Specification.
1. All embedded items required for adjoining Work or for its support shall be placed prior to placing of concrete and, where practicable, prior to placing reinforcing steel.
 2. All other trades whose Work is related to cast-in-place concrete Work or whose work must be supported by cast-in-place concrete shall be given ample notice and opportunity to install or furnish embedded items before the affected concrete is placed.
 3. Obtain setting diagrams and instructions from the supplier of item to be set and follow instructions implicitly.
 4. Provide templates, set accurately to line and to level by transit and/or by laser level and anchor securely so as to not displace during placing and compaction of concrete.
 5. Seal, temporarily pack and protect inserts and sleeves from intrusion of concrete or concrete mortar during concrete placement operations.
 6. Aluminum: No aluminum shall be embedded in or shall be installed in contact with concrete Work unless provided with an accepted protective coating.
- B. Waterstops: Provide and install continuous waterstops in strict accord with manufacturer's printed instructions and with this Specification.
1. Provide continuous waterstops as follows:
 - a. at all construction joints in perimeter walls below grade;
 - b. at all construction joints, isolation joints and expansion joints in retaining walls;
 - c. at all control joints exposed to weather;
 - d. at all uncaulked construction joints exposed to weather; and
 - e. elsewhere where indicated in the Drawings.
 2. Use maximum practical length to keep butt joints to a minimum.
 3. Splice waterstops to form a continuous watertight seal. At junctions, use special shop fabricated ells, tees, and crosses. In slabs, turn up waterstops to be continuous with waterstops in walls. Thermostatically controlled electric splicers shall be used for all field splices, following procedures in strict accordance with manufacturer's printed instructions.
 4. Test all field splices for water tightness with spark tester in accord with manufacturer's printed instructions.

5. Extend waterstops at least 6 inches (150 mm) beyond end of concrete placement in order to provide splice length for subsequent placement. Take care that both sides of waterstop are properly aligned and held firmly in place during concrete placement.
 6. Secure waterstops using factory prepunched holes in the outermost rib with tie wire. Secure at intervals of not more than 15 inches (375 mm) on center. Except at factory pre-punched holes, do not drive nails, screws, or other fasteners through the waterstop.
- C. Post-Installed Anchors shown in the Drawings, or accepted in writing, shall be installed in strict accord with Manufacturer's Printed Installation Instructions. Anchors may be placed in block or brick work only where voids within 9 inches (230 mm) of the anchor have been filled solidly, with grout. Set perpendicular to concrete surface. Drilled holes shall be cleaned thoroughly with compressed air or water jet.
- D. Pipes and Conduit: Location and spacing of piping and of electrical conduit embedded in structural concrete shall conform to Contract Documents, accepted Shop Drawings, to ACI 318, and to Building Code. Do not place pipes or conduits in concrete Work except where shown in accepted Shop Drawings.
- 3.6 SHORING OF METAL DECK
- A. General: Shore stay-in-place steel forms wherever deflection of deck spans under weight of fresh concrete would exceed 3/4 inch (20 mm) or would exceed the span length divided by 180, whichever is smaller. Deflections of deck shall be measured relative to supporting members.
- 3.7 CONCRETE VOLUME
- A. General: Contractor shall provide all concrete volume necessary to accommodate cambers, natural or induced, and to compensate for deflection of structural members (beams, girders, columns and the like), deflections of composite or non-composite steel deck, deflection and settlement of formwork, porous fill placed below theoretical grades, and all other construction influences on the actual volume of concrete placed.
1. At Contractor's option, to reduce the volume of additional concrete that may be required as a result of the deflection of unshored structural members, beams may be shored. Where Contractor elects to shore beams, the shores shall be set to allow for the deflection of the as-constructed beam cambers. To accomplish this, shores may be hung down from the bottom of the beams leaving an initial gap between the bottom of the shores and the construction below equal to the as-constructed beam cambers. Alternatively, the shores may be placed on the construction below leaving the initial gap at the top between the shore and the bottom of the beam. Shores shall be capable of supporting the tributary dead weight of the structural steel member, metal deck, reinforcing steel and fresh concrete plus all superimposed construction live loads. During the placement of concrete at a given floor, shores shall be in place from the given floor down to at least the next two lower floors or to subgrade.
 2. At Contractor's option, to reduce the volume of additional concrete that may be required as a result of the deflection of the metal deck under the weight of wet concrete (and other construction loads) the metal deck may be shored. Where metal deck is shored, shore at the midspan of the deck and support the shores from the bottom flanges of adjacent beams. Do not shore metal deck down to slab below.
 3. The design, installation and removal of shores (including shores or reshores below levels supporting shores) is Contractor's responsibility.
 4. Where over-excavation is required under footings (see Section 02 20 00), Contractor may be required to thicken the footings by the amount of the over-excavation while maintaining the top of footing elevation.

3.8 SLABS-ON-GROUND

- A. Codes: Slabs-on-ground shall be constructed in accordance with ACI 302.1R Guide for Concrete Floor and Slab Construction and ACI 360R Design of Slabs on Grade.
- B. Porous Fill: Work under this Section includes furnishing, placing and compacting of crushed stone under all slabs-on-ground. The porous fill shall be a total of 6 inches (150 mm) thick, crushed stone, unless otherwise shown in the Drawings, and shall be reasonably level.
 - 1. Crushed stone shall be compacted in 6 inch (150 mm) maximum lifts using not less than four passes of a Wacker Vibratory Plate compactor or equivalent of sufficient capacity to achieve maximum density of the compacted porous fill.
 - 2. The top of the compacted porous fill shall be not higher than the theoretical elevation taken from the Drawings.
- C. Vapor Barrier: Provide over crushed stone over subgrade and under crushed stone. Overlap at joints and bond together with continuous lines of mastic, adhesive or tape in strict accord with manufacturer's printed instructions and ASTM E1643. Repair all punctures and tears just prior to pouring slab and maintain watertightness.
- D. Piping, floor drains, electrical conduit and other items which are scheduled to be placed in the compacted fill shall be properly placed and tested by Contractor and accepted prior to the placement of the vapor barrier.
- E. Support Reinforcement securely, on chairs with base plates or with precast concrete blocks, all as specified herein, or use other methods described in Shop Drawings and accepted.
- F. Geotextile Filter Fabric shall completely surround gravel drainage courses containing underdrains.
- G. Subgrade: Immediately prior to placing concrete; wet subgrade thoroughly.

3.9 MIXING AND DELIVERY OF CONCRETE

- A. Ready-Mixed Concrete: All concrete shall be ready-mixed concrete. Measure, mix and deliver in accordance with ANSI/ASTM C 94, Specification for Ready-Mixed Concrete, and ACI 304R, Chapters 2, 3, 4, and 5 Guide for Measuring, Mixing, Transporting and Placing Concrete.
 - 1. Plant equipment and facilities shall conform to the Check List Certification of Ready-Mix Concrete Production Facilities of the National Ready Mixed Concrete Association.
 - 2. Ready mix equipment shall be completely automated.
 - a. Computerized batch/truck ticket printouts shall be delivered to the Owner or Owner's inspection agency at time of concrete delivery to job site.
 - 3. Provide site equipment in sufficient time to permit inspection, calibration, adjustment and repair as may be required before start of concrete Work.
 - 4. Admixtures shall be measured and inserted into the mix at the plant except where written exceptions are obtained. The concrete producer shall provide a redosage chart for the high range admixture. This procedure assures a slump or slump flow is in the approved envelope.
 - 5. If accepted by Structural Engineer, subject to the following conditions, water and/or admixtures may be added to the concrete at the site:
 - a. Design mixes indicate water and/or admixtures to be added at the site.

- b. Batch/truck tickets indicate the maximum amount of water and/or admixtures that can be added without exceeding the maximum specified water/cementitious ratio or admixture dosage.
 - c. Water and/or admixtures are added in a manner to control volume.
 - d. Concrete is properly remixed after addition of water and/or admixtures.
 - e. Dosage and time of addition at the site are reported on batch/truck tickets and signed by Contractor's site quality control supervisor.
- B. Hand-Mixed Concrete shall be used only where accepted specifically. Such concrete shall be mixed only in watertight containers, with dry materials measured by loose volume, sand and cement mixed together dry prior to adding coarse aggregate. Water, when added, shall be applied slowly with the entire mass turned to provide for an even mixture at all times.
- C. Hot and Cold Weather: Comply with ACI 305 for hot weather and with ACI 306 for cold weather concreting.
 - 1. Where air temperature is between 85°F (30°C) and 90°F (32°C), reduce the mixing and delivery time from 1-1/2 hours to 1-1/4 hours; where air temperature exceeds 90°F (32°C), reduce mixing and delivery time to 60 minutes.
 - 2. Where air temperature is below 40°F (4°C), uniformly heat both water and aggregates to obtain a concrete mixture with a temperature both above 50°F (10°C) and below 80°F (27°C) at all times of mixing, transportation and placement.
 - 3. Use accelerating admixture in concrete for slabs placed at ambient temperatures below 50°F (10°C).
 - 4. Freeze resistant concrete design mixes are acceptable for use provided they have been submitted and approved prior.
- D. Cement: At its own expense, Contractor will be required to test or to retest cements which may be contributing to nonconforming concrete, may have been damaged in transit or storage or may have been retained at mixing plant for 30 days or longer.

3.10 PLACING CONCRETE

- A. Codes: Concrete shall be placed in accordance with ACI 304R, Guide for Measuring, Mixing, Transporting and Placing Concrete, and shall be handled with due care to prevent deterioration due to delay or handling. Concrete shall be consolidated in accordance with ACI 309R.
- B. Clean Reinforcement, whether existing, previously placed, or placed for the pour, to a condition not less clean than is required by this Specification, including referenced, cited and stipulated Codes and Standards.
- C. Clean and Seal Formwork: Formwork shall be clean and free from frost, papers, sawdust, dirt and debris immediately prior to and during the time concrete is placed thereon.
- D. Concrete Pumping: Subject to the provisions of this Specification, ACI 304R - Chapter 9 and ACI 304.2R, concrete may be conveyed and placed by pumping. Concrete shall be pumped through lines 5 inches (125 mm) in diameter or larger. Pumped concrete mix should provide the maximum practicable coarse aggregate content. Lightweight aggregate, where proposed for pumping, shall contain optimum moisture content for pumping, but not less than 16 percent absorbed moisture, based on the oven-dry weight of the lightweight aggregate. Pump lines shall be properly lubricated per ACI 304.2 prior to commencement of concrete placement.

- E. Slump and Slump-Form: Concrete with slump or slump-flow exceeding the limits specified herein shall not be placed in the Work. Concrete with excessive slump shall be removed immediately from the site or may be used as lean concrete.
- F. Conveying of Concrete: This Specification contemplates movement of fresh concrete from the point of receipt to the location of final deposit by concrete pumps, chutes, concrete bucket, pneumatic-tired buggies and combinations of the foregoing methods. Canvas or rubber "elephant trunks" of appropriate lengths shall be used to limit free fall of concrete. Chutes shall not be used to transport concrete for distances in excess of 30 feet (9 m) nor shall chutes be sloped greater than 1 vertical to 2 horizontal. Baffle plates shall be provided and other means shall be taken to prevent segregation. All devices used for conveying concrete shall be watertight, shall not allow concrete to come in contact with uncoated aluminum or with aluminum alloys and shall be cleaned thoroughly prior to use.
- G. Protect Formwork including metal deck formwork, from damage by conveying equipment and systems.
- H. Clean, Tighten, Soak and Bonding Compound: Prior to placing fresh concrete, retighten forms against previously placed concrete. Existing and previously cast concrete surfaces shall be first cleaned of laitance and deleterious materials, the surfaces shall be then roughened so as to remove all loose or damaged material that may be present. Finally, concrete surfaces shall be soaked with water. Standing water shall be removed. In addition to soaking with water, apply the specified bonding compound within a 24 open hour time frame in accordance with manufacturer's printed instructions to the following:
 - 1. Vertical surfaces along slab-to-slab, slab-to-wall, and beam-to-beam joints.
 - 2. Horizontal surfaces along slab-to-wall joints.
 - 3. Other surfaces where indicated in the Drawings.

Contractor's procedures shall recognize that substantial shearing stresses in the horizontal plane are carried across most construction joints.

- I. Coordination of Concrete Placement: The batch plant, transit, conveying and placing operations shall be coordinated so that all concrete is in its final position within 1-1/2 hours from the time the mix is charged with water. Do not place concrete warmer than 90°F (32°C) except as provided in this Specification; for slab-on-ground concrete, the acceptable temperature of deposited concrete shall be between 50°F (10°C) and 70°F (21°C). The batching plant shall either provide chilled batch water or substitute crushed ice for part of the mixing water if required to satisfy specified concrete placing temperatures. Coordination shall be performed so that every deposit placed in the forms shall be covered by a subsequent deposit and consolidated within 15 minutes and in a continuous manner. Truck delivery, truck charging, crane positions, bucket size, tremie numbers and locations, lift heights, etc., shall be planned and directed toward achieving homogeneous and consistent placements.
- J. Placement of Concrete: Do not begin until all reinforcing has been placed, secured, and inspected. Partially hardened or retempered concrete shall not be used in the Work. Concrete placement shall be carried out in a continuous manner between construction joints and at such a rate that freshly deposited concrete may be uniformly integrated and made homogeneous at all contact surfaces with preceding deposits of concrete which shall remain both plastic and properly workable by vibration.
 - 1. Placement of concrete elements supported by columns, walls, piers and the like, shall not commence until the supporting concrete is no longer plastic and, in any event, not before a 4 hour waiting period is fully expired.
 - 2. Concrete shall be deposited as near as practicable and possible to its final position in the structure. Placement procedures shall avoid segregation due to rehandling or due to the lateral flowing of concrete induced by gravity or by vertical dropping. To minimize segregation, concrete may not be dropped between reinforcing steel curtains and cages, nor through successive reinforcement grids. Without special acceptance, vertical free fall of concrete shall be limited to 4 feet (1200 mm).

3. Procedures which cause or contribute to excessive segregation of aggregates or cause non-uniform concrete mixtures shall not be used and will be rejected.
 4. Place concrete at slumps and using procedures which will produce a homogeneous, properly compacted concrete with uniform finished surfaces.
 5. Concrete shall not be placed onto or under water except where permitted specifically by the Drawings or by this Specification.
- K. Cold Joints are defined as joints wherein concrete on one side has hardened sufficiently so that fresh concrete does not mix thoroughly with that concrete. Cold joints, should they occur, shall result in the immediate stoppage of all placement operations. Detailed drawings showing remedial measures, including removal of material, the drilling-in of dowels and anchors, the construction of keys and specially roughened construction joints by bush hammering and all else will be required prior to placing contiguous concrete.
- L. Layering: Concrete may not be placed in layers exceeding 2 feet (600 mm) in depth. Each layer shall be vibrated to the extent necessary to remove voids, honeycombing and the like.
- M. Vibration: In accordance with ACI 309R, with the exception of self-consolidating concrete shall be compacted thoroughly by vibrating to produce a dense, homogeneous mass without voids or pockets and shall be accomplished only by experienced operators. Internal vibrators shall be placed in the concrete vertically and shall penetrate at least 3 to 4 inches (75 to 100 mm) into the preceding lift in order to thoroughly blend adjacent layers. Vibrating techniques shall assure that the matrix is thoroughly and uniformly distributed around all coarse aggregate, including at form faces, thereby providing uniform dense concrete throughout the entire concrete volume. Vibration shall not be used as a means of transporting concrete. Following top-out leveling of exposed columns, walls and spandrels, concrete shall be allowed to set for 10 to 15 minutes, and shall then be given a final vibration and compaction, 1'-0" (300 mm) deep. Work concrete thoroughly around waterstops and other embedded items.
1. Where vibrating concrete with epoxy coated reinforcement, provide vibrators with rubber covered heads and otherwise preclude damage to the epoxy coating.
 2. At exposed concrete faces, take care not to damage form liners or face of formwork.
- N. Pinholes: Voids or holes larger than 1/4 inch (6 mm) in largest dimension shall be repaired under the provisions of this Section.
- O. Superplasticized Concrete: Note that hydraulic pressures against formwork may be increased substantially with the use of a HRWR and with self-consolidating concrete. Use at all locations where concrete will not flow readily around embedded reinforcement and/or other items, at locations given in the Drawings or in this Specification, at all locations where sulfate resistance is required, and as follows:
1. Provide for all watertight concrete. It is the intent of this requirement to minimize shrinkage and to provide for the best practical consolidation.
 2. Provide for all concrete containing silica fume.
 3. Use for all concrete with a water cementitious ratio below 0.50.
- P. No-Fines (Porous) Concrete: Discharge and place at a slump not in excess of 1 inch (25 mm). Compact by use of a moderate power vibratory plate compactor or manually, by hard tamping with compaction plates, so as to provide a compact, free-draining concrete.
- Q. Slopes to Drains: Lay out screed lines and finish top of concrete surfaces to provide sloped surfaces as shown in the Drawings and as required to produce free-draining surfaces.
- 3.11 SITE WORK CONCRETE
- A. General: Conform to all requirements of this Section.

- B. Unexposed Construction: Unless otherwise given in the Drawings or in this Specification, provide 4000 psi (28 MPa) normal weight concrete.
- C. Exposed Construction: Unless otherwise given in the Drawings or in this Specification, concrete for surfaces exposed to weather shall be normal weight, shall have a concrete compressive strength of 4000 psi (28 MPa) and shall be air-entrained.

3.12 OTHER CONCRETE WORK

- A. Concrete Fill for Mechanical and Electrical Equipment: Concrete fill shall be normal weight concrete, $f'_c = 4000$ psi (28 MPa). Reinforced concrete fill with welded steel wire fabric, 2" x 2" by 14 gauge (50 x 50 mm, 2100 μ m), layered 9" (240 mm) o.c. vertically, but not less than one layer set midway in fill. Roughen surface of base slab, clean thoroughly and water soak for 12 hours or more prior to placing concrete fill. Set anchor bolts for securing mechanical and electrical equipment prior to placing concrete fill, locate accurately and hold secure by templates. Trowel concrete fill to a dense, smooth finish.
- B. Cement Grout:
 - 1. Grout all elevator door sills and other items indicated in the Drawings. Grout openings in concrete around conduit, piping and other Work passing through concrete except where non-shrink grout is specified or shown. Mix, place and cure as provided by this Specification.
 - 2. Drypack grout at beam pockets in concrete walls as shown in the Drawings. Pack grout solidly, fill entire area to be grouted, and provide complete bearing with no voids. Cure for seven days.
 - 3. Where required herein or by the Drawings, fill form tie holes with grout matching surrounding concrete color. Cure for seven days.
- C. Non-Shrink Grouting: Provide formwork for grouting, install flowable non-shrink grout, cure, remove grout forms and seal and protect exposed grout edges, all in strict accord with the printed instructions of the grout manufacturer.
- D. Curbs: Strip formwork while still green and steel-trowel surfaces to a hard, dense finish. Provide corners, intersections and terminations that are slightly rounded.
- E. Cement Bases shall consist of one part Portland cement and 2 parts fine aggregate.
 - 1. Clean and roughen backing, brush in pure cement grout, place with accurate screeds, trowel to a dense, smooth finish with a bullnosed top. Provide cove at intersections with floor.
- F. Topping Slabs shall be normal weight, 4000 psi (28 MPa), unless given otherwise in the Drawings or in this Specification.
 - 1. Clean surfaces under topping slab of all oil, debris, laitance and other material which could reduce bond between the topping slab and the underlying materials. Moisten thoroughly, where surface is concrete; do not leave standing water.
 - 2. Place 4 mil (250 μ m) or thicker polyethylene slip sheet over all surfaces which are not concrete. Then place 10 mil slip sheet over the lower 4 mil slip sheet. Lap and seal slip sheet used as a vapor barrier. Take all precautions needed to protect waterproofing systems and other underlying materials.
 - 3. Reinforce with macro-synthetic fiber reinforcement at a dosage of 4 lbs/cy unless otherwise noted. Maximum shrinkage shall be less than 0.02% at 28 days.
 - 4. Convey and place so as to secure positive compaction and consolidation of topping slab, resulting in uniform, homogeneous concrete, free from segregation. Provide and use appropriate vibrating screeds.

5. Finish Cure and Seal in accord with the requirements contained in the Drawings and in this Specification.

3.13 CONCRETE FINISHES AND TREATMENTS

- A. General: Bring surface to level with screeds and strike off. Smooth the resulting surface with bull floats or darbies to remove both high points and low points. Do not add water to or disturb the plastic surface prior to finishing. Accomplish all finishes in accord with ACI 301, except where more stringent requirements are given in this Specification.
 1. Unless otherwise provided under this Specification, all flatwork shall receive a monolithic steel troweled concrete finish.
 2. Where finished floor is located above the top of the structural slab, provide all required fill and cement finish required to bring floor to final grade or to underside of final finish, as appropriate.
 3. At surfaces of silica fume concrete:
 - a. Immediately after screeding, to assist in preventing plastic shrinkage cracking, apply evaporation retarder in full accord with manufacturer's printed instructions or use fog spraying. The method required to maintain proper humidity conditions above the concrete shall have been agreed upon at the Pre-Construction Conference.

Contractor shall have fog misting equipment ready for use during the placing of silica fume concrete in flatwork. Where the rate of evaporation exceeds 0.20 lb./sq. ft./hour (0.008 kg/s.m./hour) (ACI 308, Section 1.2.1), fog misting is required. Submit procedures for misting operation and technical literature for proposed misting equipment for acceptance.
 - b. To further assist in preventing plastic shrinkage cracking Contractor shall, as necessary, make use of windbreaks, sun shields or shall place concrete at night.
 - c. Wet cure silica fume concrete surfaces. Begin wet curing immediately following finishing.
- B. Screeding for Elevated Floor Surfaces: The intent of this Specifications is to provide a slab which is screeded and finished so that the finished slab is horizontal (or sloped as given in the Drawings) and so that the slab thickness equals the thickness given in the Drawings, within the tolerances specified herein.
 1. The act of striking off the surface of the concrete to a predetermined grade shall be accomplished with the aid of rigid screed guide. The use of wet screed guides is to be avoided on all elevated surfaces.
 2. Set screeds so that slab surface is horizontal (or sloped as given in the Drawings).
 3. Floor construction, including metal deck floor construction, may continue to deflect for a short period after strike off; subsequent restraightening of the surface may move concrete paste from over beams into the resulting depressions. Contractor should plan for sufficient initial slab thickness over beams to accommodate restraightening of the surface while still maintaining adequate concrete cover and minimum slab thickness over the beams.
 4. Grade for initial strike off shall be established using grades required by the Contract Documents, making use of control points spaced at intervals not greater than 12 feet (3600 mm) in each direction.
 5. Conformance of strike off to desired grade shall be confirmed during concrete placing operations at regular intervals after sufficient load has been applied to the supporting formwork to cause initial settlement to take place.
 6. Elevation bench marks shall be provided at each column and wall element for use by the finishers as a guide when they are completing the finishing in these areas.

7. Steel Beams: All beams have some camber, natural or induced. Cambers will likely not be uniform from beam-to-beam. Contractor shall set the grade of screeds to achieve the minimum slab thickness, while maintaining levelness and flatness within the specified limits. Where required, the maximum slab thickness may exceed the specified limits.
 8. Unshored Steel Beams: It is known that beams and girders will deflect under the weight of the fresh concrete. Beam cambers, if any, may not compensate for the actual beam and girder deflections. Contractor shall reset the grade of screeds so as to achieve the minimum slab thickness, while maintaining levelness and flatness within the specified limits.
- C. Flatwork Finishes: Apply the following finish types as required by the Drawings and by this Specification:
1. Float Finish: Required for concrete flatwork surfaces which will receive trowel finish, roofing, waterproofing membrane, insulation, sand-bedded terrazzo and similar finishes, composition troweled floor finish, or "floating slabs". After the concrete has been placed, struck off, consolidated and leveled, the concrete shall not be worked further until ready for floating. Floating shall begin when the water sheen has disappeared and/or when the mix has stiffened sufficiently to permit the proper operation of a power-driven float. The surface shall then be consolidated with power-driven floats. Hand floating with wood or cork faced floats shall be used in locations inaccessible to the power-driven machine. Immediately after leveling, the surface shall be refloated to uniform, smooth, granular texture. Wet cure for seven days.
 2. Troweled Finish: Required for all concrete flatwork surfaces which will be exposed, or which will receive resilient flooring, carpeting, thin-set floor covering, paint and other thin-film finishes, waterproofing and roofing systems, and any other floor covering requiring a smooth base slab. First, achieve a float finish, and then:
 - a. After the concrete has been placed, struck off, consolidated, screeded and floated, and as soon as the condition of the slab permits, and before it has hardened appreciably, all water film and foreign material which may work to the surface shall be removed by means of lutes.
 - b. Prior to removal of screed, the surface shall be checked for flatness and levelness, and filled or cut down where necessary. Rough finishing shall be repeated with straightedge and float.
 - c. The surface shall be troweled at least twice to a smooth dense finish.
 - d. The first troweling after power floating shall be done by a power trowel and shall produce a smooth surface which is relatively free of defects but which may still contain some trowel marks.
 - e. Where required, additional troweling shall be done after the surface has hardened sufficiently. The finished surface shall be dense and smooth, free of any trowel marks, uniform in texture and appearance. On surfaces intended to receive floor covering, defects that would show through the floor covering shall be removed by grinding.
 - f. Concrete surfaces to receive membrane waterproofing shall receive a trowel finish which leaves the surface smooth and dense, free of voids, projections or ridges.
 - g. These surfaces shall be wet cured for seven days, unless a strippable curing compound is used.
 3. Exposed Float Finish: Required for interior and exterior paving, where indicated in the Drawings, and for the tops of all exposed walls. Use "troweled finish" with a wood or cork float. Wet cure for seven days.
 4. Exposed Broom Finish: Required for exterior paving surfaces and at other surfaces where indicated in the Drawings. Consult with Construction Manager and with Architect for texture and direction of texture at each area to receive broom finish. After floating use push broom with 1/16" (1.6 mm)

diameter bristles. Brush consistently and continuously across each area designated, perpendicular to direction of traffic. Wet cure for seven days. Apply waterproofing and chloride ion screen.

5. Scratched Finish: Required for concrete flatwork surfaces which will receive concrete or cement fill or which will receive finish material which will be bonded with cement mortar. After the concrete has been placed, struck off, consolidated and leveled, the surface shall be roughened with stiff brushes or rakes before final set. Wet cure for seven days.
- D. Floors: Thoroughly clean all waste material from floors as soon as each segment of Work is completed, and protect Work which may be damaged by this operation in an accepted manner. Be responsible for fallout and for protecting persons, adjacent work and property. Comply with requirements of the Building Code and all agencies having jurisdiction.
- E. Deicing Chemicals: In a freezing environment, it is anticipated that Contractor may need to provide or may be required to provide deicing chemicals for use on slab surfaces. The storage and the use of such chemicals is subject to the following requirements:
1. Contractor's attention is drawn to the fact that such chemicals have led to the destructive corrosion of reinforcing steel and to other problems in structures such as this one (including apartments, laboratories, office buildings, schools, and the like).
 2. Storage of such chemicals shall be provided with a complete and an effective barrier to the supporting concrete.
 3. Where such deicers are placed on slabs, they shall be swept up at the earliest practical moment. Where directed, sweeping shall be followed by a wash-down operation.
 4. Deicing chemicals and barrier systems shall be fully compatible with all subsequent finishes and toppings.
 5. Formwork, reinforcement, and construction joints shall be protected from all deicing chemicals used on site. Deicing chemicals should never be used to remove ice from reinforcement or formwork.
- F. Structural Repairs: Conform to Section 5.3.7 of ACI 301, Specifications for Structural Concrete, and to accepted procedures. Use the specified polymer repair mortars and epoxy adhesives. Proposed structural repairs need be submitted and approved prior to performing the repair.
- G. Out-of-Form Concrete: Achieve the following finish as required by the Drawings, and by this Specification:
1. It is the intent of this Specification that all exposed unpainted concrete be cleaned, dressed, and receive a grout clean down. Offsets shall be leveled and ground where necessary. In the event remedial action is required, it shall consist of cutting and patching. Causes for remedial action include rock pockets, honeycomb and spalling.
 2. Clean shall mean the removal of all stains, laitance, transferred form oil, curing compound residue, and dirt from the surface in a manner which avoids staining, scarring or scratching the surface. Surfaces to be painted shall be cleaned ready to receive paint. Coordinate with Paint Section of this Specification.
 - a. Apply cleaning/finishing solution in an even manner, break-to-break or joint-to-joint, on surface; allow to set before flushing with a pressure spray. Accomplish in a consistent manner throughout project.
 - b. Treatment shall produce a "matte" surface by removing just the surface of the cement-paste skin.
 3. Dress shall mean removal of all runs, splatters, fins and projections in a manner which avoids scarring, staining or scratching the surface.

4. Cutting and Patching shall mean the removal of unsound concrete, the wetting of the effected area, the application of a fine aggregate (#30 screen) and cement matrix matching the in-place concrete, to repair surface voids, honeycomb, rock pockets and spalling and the filling of tie holes, and the application and curing of the applied matrix. Patches shall be compacted thoroughly, screeded a little high, and finished flush with float or trowel. Patches shall be kept continuously moist for not less than 7 days.

- H. Waterproofing and Chloride Ion Screen: Apply two coats to exposed concrete surfaces. Apply after cleaning, but prior to patching. Use airless spray and apply in strict accord to manufacturer's printed instructions. Apply consistently, working joint-to-joint and break-to-break.

3.14 CURING, SEALING, HARDENING, DENSIFYING AND PROTECTION

- A. Curing Formed Concrete: Conform to all applicable recommendations of ACI 305, ACI 306, and ACI 308.
 1. Protect newly placed concrete against rain wash, low and high temperature effects and against premature loss of moisture.
 2. Heating of concrete for curing in cold weather shall be by means and methods which do not cause carbonization effects in the concrete. Erect wind breaks and weather protection when and where required.
- B. Wet Curing shall be for at least seven days at a temperature of at least 50°F (10°C) by continuous fog spray, immersion in water-tight covering of polyethylene to retain moisture or other accepted means. Do not use chemical curing on surfaces to be wet cured without specific acceptance.
- C. Curing Compounds: Concrete may be cured with the specified curing compound providing the following requirements can be met:
 1. All exposed interior slabs, not receiving a liquid densifier, and troweled slabs receiving mastic applied adhesives or "shake-on" hardeners shall be cured with the specified curing and sealing compound. Exterior slabs, sidewalks, and curbs not receiving a penetrating sealer, shall be cured with the specified clear, non-yellowing curing and sealing compound. Maximum coverage shall be 400 ft²/gallon on steel troweled surfaces and 300 ft²/gallon on floated or broomed surfaces for the curing/sealing compound.
 2. Strippable Curing Compound: All slabs, where indicated on the drawings or where approved, shall be cured with the specified strippable curing compound applied in strict accordance with the manufacturer's recommendation.
 3. Compounds which diminish bond or adhesion of finish materials, topping slabs, mortars and the like to concrete surfaces shall not be used or shall be totally removed prior to installation of affected Work. Contractor shall coordinate respective subcontractors and shall be solely responsible to determine and to assure compatibility of curing compound with both concrete and with overlying materials.
- D. Polymer Repair Material for Leveling Low Spots shall be mixed, applied, cured and finished in strict accordance with the recommendations and instructions of the manufacturer.
- E. Protection: Protect concrete Work from overloading and from defacement of any nature during construction operations.
- F. Waterproofing and Chloride Ion Screen: Apply compound where specified and where shown in Architectural or Structural Drawings. Follow explicitly manufacturer's printed instructions.

3.15 FORM REMOVAL AND RESHORING

- A. General: Forms and/or shores and reshores shall be removed only after the supported concrete has achieved sufficient strength to allow the structure to support the weight of concrete plus all superimposed

live loads and lateral forces including construction live loads to be placed thereon, without damage to the structure, overstress or excessive deflection. Contractor shall perform, at no expense to Owner, all tests and calculations needed to show when forms, formwork supports, shores and reshores can be removed without endangering the structure, subject to the following limitations:

1. Contractor shall be solely responsible for proper removal of forms and maintenance of safe working conditions for personnel.
 2. Do not damage arises or exposed concrete surfaces with tools or other devices when removing formwork. Repair or replace, as directed, all Work damaged due to improper or early removal of forms.
- B. Vertical Forms may be removed 24 hours after concrete is placed contingent upon concrete having been maintained throughout that period at temperatures in excess of 50°F (10°C), upon achieving concrete strength adequate for stripping, and provisional on the implementation of effective curing procedures.

END OF SECTION 033000

SECTION 035416

CEMENT LEVELING COMPOUND

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.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the cement leveling compound as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

- 1. LOCATION: As required in carpeted areas – assume 200sf

1.3 RELATED SECTIONS

- A. Concrete work - Section 033000.

1.4 QUALITY ASSURANCE

- A. Applicator: Company specializing in performing the work of this Section with a minimum of 3 years' experience and approved by the manufacturer of the product used.

1.5 SUBMITTALS

- A. Submit catalog information and product data for material to be used.
- B. Submit approval letter as required by Article 3.1, para. B. herein.

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.

1.7 REGULATORY REQUIREMENTS

- A. Conform to New York City Building Code for combustibility or flame spread requirements.

1.8 MOCK-UP

- A. Construct a mock-up of underlayment material, 8 feet long by 8 feet wide.
- B. Locate where directed by the Architect.
- C. Approved mock-up may remain as part of the Work.

1.9 JOB REQUIREMENTS

- A. Do not install underlayment until floor penetrations and peripheral work are complete.
- B. Maintain minimum ambient temperatures of 50 degrees F. 24 hours before, during, and 72 hours after installation of underlayment.
- C. During the curing process, ventilate spaces to remove excess moisture and until underlayment is dry, allow a minimum of seven (7) days.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Subject to the requirements specified herein, provide one of the following products:
 - 1. "Level Set 200" by ProSpec.
 - 2. "DSP-520" made by H.B. Fuller Co.
 - 3. "Super Flo-Top" made by Euclid Chemical Co.
 - 4. "K-15" made by Ardex.
 - 5. "Ultraplan 1 Plus" by the Mapei Corp. (rapid setting).
 - 6. "Novoplan 2" by the Mapei Corp. (standard setting).
 - 7. "Level Quick R/S" or "E/S" by Custom Buiding Products.

2.2 MATERIALS

- A. Underlayment: One of the above listed products.
- B. Water: Potable and not detrimental to underlayment mix materials.
- C. Primer: Manufacturer's recommended type.
- D. Joint and Crack Filler: Latex based.

2.3 MIXING

- A. Site mix materials in accordance with manufacturer's instructions.
- B. Mix to achieve following characteristics:
 - 1. Density: 115 lb./cu. ft. minimum dry density.
 - 2. Compressive Strength: 4,000 psi minimum in accordance with ASTM C 109.
 - 3. Fire Hazard Classification: Flame/Smoke rating of 0/0 in accordance with ASTM E 286.
- C. Mix to self-leveling consistency.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where cement leveling compounds 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. Manufacturer's representative must inspect surfaces to receive cement leveling compound and approve those surfaces in writing to the Architect prior to start of application.

3.2 PREPARATION

- A. Vacuum clean surfaces; remove any material (curing compounds, film, dirt) that would be detrimental to bond of cement leveling compound.
- B. Prime substrate in accordance with manufacturer's instructions. Allow to dry.
- C. Close floor openings.

3.3 APPLICATION

- A. Install underlayment in accordance with manufacturer's instructions.
- B. Place to minimum 1/4" thickness.
- C. Transition to existing floor; use stiff mix to slope to align with existing adjacent floor.

3.4 CURING

- A. Air cure in accordance with manufacturer's instructions.

3.5 APPLICATION TOLERANCE

- A. Top Surface: Level to 1/8 inch in 10 ft.

3.6 PROTECTION OF FINISHED WORK

- A. Do not permit traffic over unprotected floor underlayment surfaces and until underlayment is completely dry.

END OF SECTION

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 as when shown in Drawings.
 - 2. Metal joint reinforcing, anchors, closures and related accessories for masonry.
 - 3. Control and expansion joints in masonry, filled with joint fillers.
 - 4. Chases, recesses, pockets and openings in masonry as required for installation of work by others.
 - 5. 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.
 - 6. Grouting in of metal items built into masonry work.
 - 7. Protection, pointing and cleaning of masonry.

1.3 RELATED SECTIONS

- A. Sealant - Section 079200.

1.4 SUBMITTALS

- A. Submit Shop Drawings for the following:
 - 1. Anchoring details.
 - 2. Control and expansion joint locations and details.
- B. Submit Samples for the following:
 - 1. Joint reinforcing, each type, width and proposed location (labeled).
 - 2. Anchors, wedges and ties, each type, width and proposed location (labeled).
 - 3. Joint filler, each type.

4. Flashing, including splice sample, 12" long.
- 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.

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 arises:
 - 1). In 10 feet 1/8"
 - b. For external corners, expansion joints and other conspicuous lines:
 - 1). In any story of 25 feet maximum 1/4"
 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"
 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"
 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. 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.

 - C. 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 City Building Code.
 - 1. For special inspection of masonry construction, refer to Section 014100, "Testing and Inspection."
- B. Conform to New York City Local Law 17-95 for Seismic Requirements.
- C. Comply with New York City Section 32-05 of Chapter 32 of Title 1 of the Official Compilation of the Rules of the City of New York regarding "Impact Resistant Stair and Elevator Enclosures" when such enclosures are of masonry construction.

1.8 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. 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.

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 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. Joint Reinforcing for Masonry Walls
 1. 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.
 2. Wire used in assemblies noted above shall be cold drawn steel wire conforming to ASTM A 82.

3. Approved Joint Reinforcing Manufacturers
 - a. Hohmann & Barnard
 - b. Wire-Bond
 - c. Heckmann Building Products
 - d. National Wire Products Industries, Inc.
- C. Anchors and Ties
 1. For anchoring masonry to structural steel, provide hot-dip galvanized steel, as listed, or approved equal by manufacturer noted above in Para. C.6:
 - 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.
 2. 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.
 3. 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.
- D. Reinforcing Bars and Rods: ASTM A 615, Grade 60. See Drawings for size.
- E. 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.

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. 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.
- B. Reinforced Concrete Block: Provide Portland cement/lime mortar conforming to ASTM C 270, Type S.
- C. Mortar for Cement Cants: One (1) part Portland cement and four (4) parts sand, by volume.
- D. 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.
- E. 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.

F. 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.

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.** 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. 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.
2. Lay masonry walls with 3/8" joints unless otherwise shown on drawings.
3. Tool exposed joints slightly concave after the mortar joint is "thumbprint" hard. Concealed joints shall be struck flush.
4. 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.

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- C. Stopping and Resuming Work: Rake back 1/2 block 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. Solid Wall Construction
1. Fill the vertical longitudinal joint between wythes solidly with mortar by parging the in-place wythe and shoving units into the parging.
 2. Tie wythes with continuous horizontal reinforcement embedded in mortar joints sixteen (16) inches o.c. vertically.
- G. 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. 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.
- H. 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.

I. 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 40'-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.

J. Lintels

1. 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

2. U-shaped concrete block lintels shall extend a minimum of 8" at each side of opening.

3.5 CANTS

- A. Provide specified mortar for cement cants at beams and other projections in elevator shafts, where adjoining wall is of masonry construction. Cants shall slope twenty (20) degrees from the horizontal.

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 NCMA Technical Notes. 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 051000
STRUCTURAL STEEL

PART 1 - GENERAL

1.1 CONTRACT DOCUMENTS

- A. Comply with Contract Documents: All Work of this Section shall comply with the requirements of the Conditions of the Contract (General, Supplementary, and Special), with all Sections of Division 1 - General Requirements, with this Section of the Specification, with the Drawings and with all other Contract Documents.
- B. Flammable Materials or materials not conforming in all respects to the fire resistive and fire safety provisions of governing regulations shall not be left in place in the Work.
- C. Disposition of and Exposure to Materials: Contractor remains fully responsible for the disposition of and for the exposure to persons of all materials, whether or not hazardous.
- D. Volatile Organic Compounds (VOC): Contractor remains fully responsible for the supplying of products and materials complying to the VOC limitations set forth by the Building Code and by governing agencies having jurisdiction.
- E. Metrication: For convenience of Contractor, S.I. units are provided in this Specification. In the event of conflict between the basic unit and the S.I. unit, the basic unit shall prevail.

1.2 WORK INCLUDED

- A. Scope: Contractor shall examine all of the Contract Documents for the extent of the Work of this Section of the Specifications. That Work shall include all labor, materials, devices, plants, tools, equipment, appliances and services necessary to complete the Work as shown in the Drawings, as specified herein, as required by job conditions, and as required by governing authorities having jurisdiction, including but not limited to the following:
 - 1. Beams, columns, girders, bracing, all including connections and associated Work.
 - 2. Base plates and bearing plates.
 - 3. Posts, struts and hangers.
 - 4. Furnishing but not installing embedded items such as anchor bolts, wall and anchor plates, and the like.
 - 5. Steel support brackets, seat angles, and material for the support of concrete slabs.
 - 6. Angles, plates and the like to support metal deck.
 - 7. Galvanizing, shop and field painting, and field touch-up.
 - 8. Field surveying of as-erected structural steel and re-plumbing as required.
 - 9. Shop applied stud shear connectors.
 - 10. Shop applied concrete anchors.
 - 11. Supplying and installing of lintels, where attached to structural steelwork.
 - 12. Bracing, guying and plumbing of structural steelwork.
 - 13. Protection of Work of this Section.

14. Protection of other Work from activities under this Section.
 15. Determination of detail dimensions, member locations and the like from information provided in the Architectural and Structural Drawings and/or as provided by Architect.
 16. Connection design by Contractor's Professional Engineer.
 17. Review and development of Construction Sequence as proposed by or implied from the Contract Documents.
 18. Review of Contractor-prepared Construction Sequence by Contractor's Professional Engineer.
 19. Shop Drawings, samples and submittals.
 20. Provisions for other Work, including holes through structural steel for other Work.
 21. Cooperate with Owner, with Construction Manager, with Architect and with Testing Agency in all aspects of quality assurance and in all other activities related to the Work of this Section.
 22. The safe handling and disposition of materials related to the Work of this Section, whether or not hazardous.
 23. All other labor, materials and Work given in the Drawings, specified herein or required to make the structural steel Work complete.
- B. Work Installed as Specified Elsewhere: Contractor shall examine all of the Contract Documents for the extent of Work to be installed under this Section.

1.3 RELATED WORK

- A. Related Work Specified Elsewhere, Amplified Elsewhere or Included in Other Contracts:
1. Submittals: Section 01 30 00.
 2. Owner's shop and field testing and inspection of Work by Testing Agency engaged and paid for by Owner: Section 01 40 00.
 3. Installing anchor bolts and embedded plates in concrete: Section 03 30 00.
 4. Non-shrink grouting for structural steel base plates: Section 03 30 00.
 5. Cast-In-Place Concrete: Section 03 30 00.
 6. Metal Deck and Field-Applied Stud Shear Connectors: Section 05 30 00.
 7. Applied Fire Protection: Section 07 81 00.

1.4 APPLICABLE CODES AND STANDARDS

- A. General: Except as modified or voided by requirements specified herein or by details or notes included in the Drawings, Work specified under this Section shall conform to all applicable provisions of the codes, specifications, standards and other reference documents cited in this Specification and/or noted in the Drawings. In the event of conflict between provisions of stipulated reference documents and of this Specification or of another stipulated reference document, Contractor shall report in writing the details of the conflict. Decisions regarding applicability of provisions of this Specification and provisions of reference documents applied independently or as supplemented, modified or voided, will be provided in writing and shall be final. Resolution of conflicts shall conform to the procedures set forth in the General Conditions of the Contract.
- B. Codes: All Work under this Section shall conform to the requirements of the 2020 Building Code of New York State, hereinafter referred to as Building Code, and to the regulations of all governmental authorities

having jurisdiction. Where more stringent, the following codes, standards and specifications, latest edition and revision, shall apply to the Work, all as modified herein or by Building Code:

1. Specification for Structural Steel Buildings, AISC 360, by the American Institute of Steel Construction (AISC).
 2. Code of Standard Practice for Steel Buildings and Bridges, published by the American Institute of Steel Construction (AISC Code). Sections 6, 7, 8 and 10, only, shall apply to the Work, except as modified in this Specification; the remainder being specifically excluded.
 3. Structural Welding Code - Steel, AWS D1.1.
 4. Structural Welding Code - Sheet Steel, AWS D1.3.
 5. Specification for Structural Joints Using ASTM A325 or A490 Bolts, approved by the Research Council on Structural Connections of the Engineering Foundation (RCSC Specification). Endorsed by the American Institute of Steel Construction, and the Industrial Fasteners Institute.
 6. Standard Symbols for Welding, Brazing, and Nondestructive Examination, AAWS A2.4.
 7. Structural Welding Code - Reinforcing Steel, AAWS D1.4.
- C. Reference Documents: To the extent that the best quality of Work is provided, Work shall conform to the examples, procedures and recommendations listed below, latest edition and revision. Where provisions of the Building Code, this Specification, or codes, standards, manuals and specifications cited by this Specification are more restrictive or provide increased quality, the combination of provisions, examples, procedures and recommendations which provide both best quality and Building Code conformance shall control the Work.
1. Steel Construction Manual, Thirteenth Edition, by American Institute of Steel Construction (AISC Manual).
 2. Detailing for Steel Construction, by the American Institute of Steel Construction.
 3. SSPC Steel Structures Painting Manual, Volume 1, and Volume 2, by Steel Structures Painting Council.
 4. Guide for the Visual Inspection of Welds, ANSI/AWS B1.11.
 5. Qualification of Post-Installed Mechanical Anchors in Concrete, ACI 355.2.
 6. Qualification of Post-Installed Adhesive Anchors in Concrete, ACI 355.4
- D. ASTM (American Society for Testing and Materials) Specifications cited in this Specification or cited in reference documents shall be the year of adoption or tentative adoption and revision listed in the latest edition of the Annual Book of ASTM Standards, Index, except that, should a specific year of adoption or revision be cited by the Contract Documents, by Building Code, or be proposed by Contractor and accepted by Structural Engineer, that edition shall apply to and shall control the Work.
- E. Conformance to Regulations: Work of this Section shall conform to all applicable federal, state, and local laws and regulations.

1.5 SUBMITTALS

- A. General: Submit samples, Shop Drawings, product data, test reports and data, manufacturer's names, certifications, procedures, methodology statements, and the like as stipulated. With the exception of samples, submittals shall be in PDF format and transmitted electronically, unless otherwise accepted.

1. Review of Contractor's submittals is only for the limited purpose of the examination of submittals for conformance with the design concept of the project and to assist Contractor in ascertaining that the information given in the submittals conforms to the requirements of the Contract Documents.
 2. Review of Contractor's submittals is not conducted for the purpose of determining the accuracy or the completeness of the submittal, for dimensions or quantities, or for installation or performance of the system or the piece(s) being submitted.
 3. Submittals by Contractor implies that Contractor has checked the submittal with care. Where by error or other cause, Contractor's check has not been accomplished, Contractor shall not rely on review but shall first check and shall then resubmit such material as though the submittal had been rejected.
- B. Samples: Submit for acceptance prior to purchase, fabrication or delivery:
1. Post-installed anchors; each type.
 2. Substitute Products, Materials and Fixtures, where requested by Contractor, shall be accompanied by sample(s) of an acceptable size.
 3. Other Products, Materials and Fixtures, where requested in writing.
- C. Shop Drawings:
1. General: Shop Drawings, as the term is used under this Section, are not Contract Documents, but are intended to demonstrate the way that Contractor intends to conform to the requirements provided in the Contract Documents. Contractor may wish to use these same drawings as a part of the instructions given to craft persons for the accomplishment of the Work.
 2. Best Standards: Shop Drawings furnished under this Section shall conform to the best standards of the construction industry and shall be not less complete than indicated by the applicable procedures shown in AISC's Detailing for Steel Construction. Shop Drawings shall be prepared by and under the supervision of competent engineering personnel. Prior to preparation, Contractor shall retain a Professional Engineer, licensed in the State of New York, to supervise the preparation of and to check each Shop Drawing for compliance with the requirements of the Contract Documents.
 - a. Shop Drawings shall be prepared under the direction of personnel completely familiar with Architectural, Mechanical, Plumbing, Electrical and other building trades Drawings
 - b. Contractor shall provide detailer with tool clearances needed for both shop and field bolted connections.
 3. Shop Drawings shall be submitted for review and to governing agencies having jurisdiction for acceptance in accordance with the provisions of the Contract Documents.
 4. Shop Drawings shall be submitted in parts as follows:
 - a. Job Standards
 - b. Erection Drawings
 - c. Index Sheets
 - d. Piece Drawings
 - e. Field Work Drawings
 5. Job Standards are intended to assist Contractor by developing the set of repetitive details, whether shop or field, welded or bolted. Job Standards shall be accepted prior to the commencing of

dependent Work for Piece Drawings. Provide supporting calculations on request. The "name" or designation of the appropriate Job Standard connection shall be given in the Erection Drawings for each piece carrying a Job Standard connection. Job Standards are a vital and an essential part of the overall Shop Drawing submittal.

6. Erection Drawings shall show clearly the size, grade and location of each member. To the extent desired by Contractor, the Structural Drawings may be used for this purpose. In addition to basic information given in the Structural Drawings, Erection Drawings shall contain (for each piece) the erection mark, the job standard connection mark, beam copes and blocks as given in the next page of this Specification, the location, size and reinforcing of beam penetrations, the elevation of top of beam, (where sloped) the elevation of the work point of both ends, camber, and such projecting elements as may be of concern to Architect.

Additionally:

- a. Show each field connection complete with data and details necessary for assembling the structure. Direct special attention to the possible need for special guying, bracing or shoring to prevent deformation of existing or new structure due to stresses caused by erection procedures and equipment, by construction loadings and by forces imposed by natural phenomena.
 - b. Prepare anchor bolt, base plate and embedded plate Erection Drawings containing complete location and placing details. Include details of erection templates. Provide Erection Drawings to the concrete trade in advance of applicable Work and in coordination with concrete construction sequence.
 - c. Contractor's Professional Engineer licensed in the project's jurisdiction shall review and accept Contractor's construction sequence. As evidence of conformance with this requirement, Contractor shall submit a letter bearing the seal and signature of Contractor's Professional Engineer, attesting to conformance with this requirement.
7. Drawing Index: Prepare, keep up-to-date, and submit a Drawing Index, cross-referencing assigned piece mark with the drawing number upon which the piece is detailed. Erection Drawings may be used for this purpose. Shop Drawings submitted without an up-to-date Index and the applicable Erection Drawing(s) showing the location of each piece, will be deemed an incomplete submission and will not be accepted as subject to any agreed Shop Drawing schedule.
 8. Piece Drawings will not be reviewed for the information identified below that is to be contained within the Job Standards and Erection Drawings. Piece Drawings with given pieces having potential impact on building systems not associated with the Work of this Section will be reviewed.
 - a. The Job Standard and Erection Drawings as specified herein are to contain the information required for the review of typical beams, girders, columns and bracing, without the need to submit the corresponding Piece Drawings. Accordingly, except as specified herein, or as requested, the submission of Piece Drawings for typical beams, girders, columns and bracing is not required.
 9. Submit Job Standards, Erection Drawings, Drawing Index and Piece Drawings in coordinated packages so that checking personnel will have all needed information in hand at the time of checking.
 10. Field Work Drawings: Prepare Field Work Drawings depicting all field Work required to accommodate field conditions.
 11. Shop Drawings shall include plans, elevations, sections and complete details to describe clearly, at an ample scale, all Work to be provided. Shop Drawings shall be accurately dimensioned and shall be notated clearly.

12. Size and Grade of Steel for each component part of the structure shall be indicated clearly in Shop Drawings. Rolled shapes, tubes, plates and other components shall be identified by using the standard designations used in AISC's Detailing for Steel Construction.
13. Symbols: Welds and nondestructive tests shall be indicated by using the symbols conforming to AWS A2.4, Standard Symbols for Welding, Brazing, and Nondestructive Examination. Indicate joint designation, welding process, and other data in the tail of the welding symbol.
14. Detail in accord with and to accommodate Contractor's field measurements of supporting and adjoining construction. Do not fabricate before accepted Shop Drawings have been returned to Contractor.
15. Work of Other Sections: Show in Shop Drawings holes and other Work required for securing Work of other Sections to structural steelwork, as well as holes and other Work required for the passage of Work of other Sections through structural steelwork. Pay particular attention to the requirements of the Work specified under Section 03 30 00. Provide Field Work drawings for all such holes not shown in Shop Drawings.
16. Structural Steel Connections: Identify explicitly the type of connection used at each location. Distinguish between shop and field connections. Determine and establish the arrangement and layout of each connection to the extent that detailing options are allowed in the Drawings or in this Specification. Connections shall be proportioned by LRFD, or by ASD where allowed specifically in the Drawings and shall conform to controlling requirements given in the Drawings, specified herein, or required by the Building Code.
 - a. Proportion connections not completely detailed in the Drawings to resist loads and load combinations given, noted, specified or required by the Contract Documents or by Building Code. Include reinforcing plates, web doubler plates, stiffeners and all else required to provide adequately for the given loads and load combinations.
 - b. As a part of the preparation of Shop Drawings, Contractor's Professional Engineer licensed in the project's jurisdiction shall design and be responsible for the design adequacy of all connections required by the Work, unless detailed completely in the Drawings. Contractor shall submit a letter bearing the seal and signature of Contractor's Professional Engineer, attesting to conformance with this requirement. Provide supporting calculations on request.
 - c. Contractor shall ascertain that all connections have sufficient strength, stiffness and ductility to resist safely loads imposed by handling, shipping, erection, temporary conditions and the like.
 - d. Except where smaller connections are given explicitly in the Contract Documents, and except where larger connections are required to resist loads from handling, shipping erection and the like, Contractor shall provide connections for members in bracing capable of resisting not less than 50% of the tensile strength of the members.
 - e. Where bridging, sway bracing and the like spans from deflecting elements to rigid elements, provide temporary connections so as to allow the free motion of the deflecting element.
 - f. Fillet welds, partial penetration welds, weld returns, plug welds and the like shall equal or exceed the sizes given in the tables and notes included in the Drawings and in all cases shall equal or exceed the minimums permitted by AISC Specification.
 - g. Single-angle, one-sided and other types of eccentric connections shall not be used except where more concentric connections are not practical. Use of such eccentric connections is subject to prior acceptance.
 - h. Prior to start of Shop Drawings, Contractor shall select and shall submit for acceptance the range of bolt sizes to be used for each grade of bolt. There shall be no overlap in bolt size between grades.

17. Indicate clearly the grade, size and number of bolts, the type, number, position, designation and orientation of each washer, the bolt tension indicating system and the size of each hole, whether slotted or round. Proportion connection details to ensure adequate wrench clearance for correct bolt tensioning sequences.
18. ASTM A490 bolts may be used in slip critical-type connections only, not relying on the bearing capacity of the connection and not to carry direct tensile loads.
19. Design and detailing of structural steel connections to plates or anchors embedded in concrete shall be based on tolerances in excess of the most severe combination of structural steel, concrete structure, and embedded item location tolerances. Refer to Specification Section 03 30 00 for tolerances for concrete structure and embedded item location, and detail structural steel to accept those tolerances.
20. Camber and Sweep: Show all camber dimensions in Shop Drawings. Where specific camber is not given in the Drawings, note in affected Shop Drawing that such members shall be fabricated with natural camber up. Detail, fabricate and erect beams and girders so that natural sweep is away from the immediately adjacent edge of slab.
21. Stud Shear Connectors and Concrete Anchors: Show in Shop Drawings welded stud shear connectors and concrete anchors which will be shop applied.
22. Deck Supports: Indicate specifically in Shop Drawings all structural steel shelves required to support steel deck ends and edges at supporting beams, columns, and other structural steel elements. Detail steel deck shelves to provide suitable dimension and configuration to develop steel deck end and edge welding and reactions.
23. Lintels and other secondary members requiring erection tolerances closer than those permitted herein shall be provided with appropriate slotted holes and shall be connected with ASTM A325 SC bolts. Increase member size where required to provide adequate space, edge and end distances for slots.
24. Cleaning, Surface Preparation (SSPC), and Painting data and requirements, including specific identification of "no-paint" areas, shall be detailed and scheduled in Shop Drawings.
25. Contractor shall coordinate and cross-check for accuracy, completeness and correct relationship to the Work of other Sections, each Shop Drawing prepared for the Work of this Section, including each Shop Drawing prepared by accepted subcontractors. Contractor's check shall include a verification of compliance with the Contract Documents and shall be performed prior to submission and resubmission of each Shop Drawing. The personally inscribed initials of the person(s) preparing each Shop Drawing as well as the detailing agency's supervisor and chief checker shall be included in the title block or similarly prominent location.
26. Substitutions: Should Contractor desire a Substitution or Deviation from Drawings or Specifications, or both, Contractor shall submit the specific request in writing prior to the submittal of Shop Drawings showing the Substitutions or Deviations. Requests for Substitutions or Deviations shall be submitted on Contractor's letterhead. Substitutions and Deviations not identified, or identified only in letters of transmittal or in Shop Drawings, or both, without the required written description on Contractor's letterhead, may not be accepted and shall be sufficient cause for the rejection and the return of such Shop Drawings without further action.
 - a. Acceptance of Shop Drawings including Substitutions and Deviations not detected during Shop Drawing review, shall not relieve Contractor from responsibility to conform strictly to the Contract Documents. Substitutions and deviations will be allowed only where permitted in writing.
 - b. Substitute structural shapes will be accepted provided both structural stiffness and structure strength are not impaired in both the composite and the non-composite conditions and provided the substitute shape does not interfere with or otherwise compromise the Work of other trades.

- c. Architect is the sole judge of the suitability of Contractor-proposed substitutions. Review of Contractor-proposed substitutions and deviations is subject to Article 2.20 of the Agreement.
- 29. Temporary Work: Depict and identify temporary members and connections which may be required for temporary construction, erection and the like.
- D. Product Data: Submit printed manufacturer's literature for each manufactured item specified under Part 2 - Products - along with test data as may be requested. Include detailed instructions for application and installation.
- E. Mill Test Reports:
 - 1. Submit certified copies of mill test reports for all steel furnished. Submit also to governing agencies having jurisdiction. Comply with all applicable parts of ASTM Specifications. Beyond ordering information normally provided by Contractor, the mill shall be instructed to color-code in accordance with ASTM A6, and to mark with heat number, size, and type and grade of steel.
 - 2. Submit manufacturer's certification of bolts, nuts, washers, DTI's and the like for each production lot of each grade of each type and each size of fastener component and filler material for welding.
 - 3. Mill test reports shall state clearly the governing ASTM specification and shall be certified and notarized by Contractor as conforming in all respects to that specification.
 - 4. Material provided in accord with the above requirements may be used in the Work without further local tests. In the case of controversy, Contractor shall perform tension, bend and such other tests as are required to demonstrate compliance with the requirements of the Contract Documents.
 - 5. All steel that is not properly identified or whose source is subject to question shall be rejected.
 - 6. Steel pipe and tubing shall have not less than one tension, one bend, and one flattening test for each one hundred lengths or fraction thereof, for each size, for each wall thickness and for each grade. Both tension and bend tests shall be made from coupons taken longitudinally.
- F. Material Identification: On completion of the Work, Contractor shall submit an affidavit, countersigned by the appropriate subcontractor(s), attesting that all materials and products provided for the Work conform to the applicable specifications, standards, yield points, grades and the like required by the Contract Documents.
- G. Certification of Shielding Gas: Submit certification that shielding gas is a weldable grade having a dew point of -40°F (-40°C) or lower.
- H. Names of Manufacturers/Suppliers: Submit for acceptance the names of the following products and/or producers along with certification that the products conform in all respects to the requirements of the Contract Documents:
 - 1. plates and shapes
 - 2. welding materials
 - 3. shielding gas
 - 4. stud shear connectors
 - 5. deformed bar anchors
 - 6. bolts, nuts and washers
 - 7. bolt tension indicating devices
 - 8. post-installed anchors

9. anchor bolts
 10. shop and field paint and galvanizing
 11. coating of milled surfaces
- I. Post-Installed Anchor Certificates: Submit approved independent testing report per ACI 355 (ICC-ES report), Manufacturer's Printed Installation Instructions, letter describing installation procedures, and installer qualifications including certification for horizontal and overhead adhesive installation where applicable.
 - J. As-Built Shop Drawings: In a format acceptable to each, and at the completion of the Work, provide to Owner, to Architect and to Structural Engineer, one complete digital set of all Shop Drawings (including Job Standards, Erection Drawings, Index Sheets, Piece Drawings, Field Work Drawings and the like), so as to provide as-built drawings of finished and completed Work under this Section.
 - K. Governing Agencies: Provide all Shop Drawings, tests, inspections, reports, affidavits, manufacturer's certifications, certification of compliance with VOC limits, and other requirements and data to governing agencies having jurisdiction.
- 1.6 MEASUREMENTS, TEMPLATES AND TOLERANCES
- A. Measurements:
 1. Field Measurements: Obtain all field measurements required for proper fabrication and installation of Work covered by this Section. Submit, prior to installation, all measurements indicating discrepancies from the Drawings. Describe in writing and, where applicable, by sketches proposed methods of correcting discrepancies. Measurements are the responsibility of Contractor.
 2. Lay out each part of the Work in strict accordance with the Architectural, Structural, Mechanical, Electrical, Plumbing and all other Drawings and be responsible for correct location of same. Lay out from at least two pre-established benchmarks and axis lines, individually correct for length and bearing.
 3. Templates: Furnish templates and layout drawings for exact locations of items to be embedded in concrete, with setting instructions required for installation of embedded items.
 4. Field Survey: Provide all field survey measurements required by Construction Manager for coordination with other trades installation.
 - B. Tolerances: Structural steel shall be fabricated and erected within the tolerances specified in the AISC Specification, AISC Code, and AWS, except that more or less restrictive tolerances, specifically shown or noted in the Drawings or provided under this Specification, shall take precedence and shall apply to the Work.
 1. The plumbness tolerance of columns, sometimes given as 1:500, shall be taken as the square root of the sum of the squares of the slope for the two orthogonal axis.
 2. The vertical dimension, measured from the column splice immediately above to the top of as-erected members framing to (or framing immediately adjacent to) the column, shall not vary by more than 1/4 inch (6 mm).
 3. Individual floor beams and girders shall be considered level where the difference in elevation between ends of the members does not exceed 1:750. Spandrel beams and girders shall be considered level where the difference does not exceed 1:1500.
 4. The ends of all members intended to be at the same elevation shall fall between two planes not farther apart than 1/2" in. (12 mm).

5. Overall plan dimensions shall not vary by more than plus or minus 1:2000 for the overall length or width or two diagonally opposite extremes, all measured to the centerline of columns.
6. Camber tolerances for beams and girders, as measured in the shop, shall not exceed the following:

For lengths to 45 feet (14 m), plus 0.5 inches, minus 0 inches (12 mm/0 mm).

For lengths greater than 45 feet (14 m), an additional 1/8 inch (3 mm) for each 10 feet (3 m) of length or fraction thereof.
- C. Tolerances for existing work significantly exceed tolerances for new work. Where new work meets existing work anticipated at least three (3) times more deviation from tolerances specified for new work. Within ten (10) working days of exposing existing work, submit surveyed or scanned information documenting existing conditions of work to remain in place.

1.7 TESTING AND INSPECTION

- A. Owner's Testing Agency: All work is subject to Special Inspection as required by Building Code. Subject to acceptance by Architect, Owner will engage and pay for the services of an independent testing agency (Testing Agency) as outlined in Section 01 40 00, Inspection and Testing. The selected Testing Agency will meet the requirements of ASTM E329. Contractor alone is responsible for the achieving of the required level of quality, both in the shop and in the field. Testing Agency will rely heavily on reviewed Shop Drawings, as described earlier in this Specification, in its examination of as-constructed Work. Contractor shall not retain Owner's Testing Agency for its own work but may, subject to acceptance by Owner, contract through Owner for such Work.
- B. Responsibilities and Duties of Testing Agency: Testing Agency will perform the following functions, inspections and tests:
 1. On instructions and at locations selected by Architect, Testing Agency may sample materials taken from the as-erected Work.
 - a. High-tensile bolts, nuts and washers, of each size and grade, may be sampled and tested in accord with ASTM procedures.
 2. Inspectors provided by Testing Agency will be qualified to examine the materials and the systems employed in the Work. In case of dispute between Contractor and Testing Agency as to the competence of any inspector, Structural Engineer shall be the final arbiter.
 3. Both tests and inspections will comply with the requirements of the Building Code, as amended by the requirements and regulations of the Building Department and as Specified herein.
 4. Testing Agency will inspect all shop and field welding (except for welding performed in a Building Department licensed fabricating facility), and high-strength bolting in accord with the provisions of this Specification. Testing Agency, upon the completion of the Work, will be required to certify in writing that the welding and the high-strength bolting has been performed in accordance with the provisions of the Drawings and with this Specification, and with the applicable requirements of regulatory agencies having jurisdiction.
 5. Testing and reporting by Testing Agency will be performed in accord with the following requirements:
 - a. Testing will be performed in accord with the provisions of ASTM A370, Standard Test Methods and Definitions for Mechanical Testing of Steel Products.
 - b. Liquid penetrant testing will conform to the provisions of ASTM E165 and AWS D1.1.
 - c. Magnetic particle inspection will conform to the provisions of ASTM E109 and AWS D1.1.

- d. Ultrasonic, X-ray and gamma ray testing will conform to the provisions of AWS D1.1, Chapter 6.
- 6. Continuous inspection of high-tensile bolting will be performed by Testing Agency. Where the tension in any bolt is deemed to fall below the proper value, all bolts in that connection shall be examined.
 - a. All bolts will be visually examined for proper tension.
 - b. Ten percent of the bolts, but no fewer than two bolts, selected at random from each connection in question, shall be tested for bolt tension in accord with the provisions of the Specification for Structural Joints Using ASTM A325 or A490 Bolts.
- 7. Inspection of all shop and field welding will be provided by Testing Agency.
 - a. All welds are to be visually inspected.
- 8. Continuous inspection of complete penetration welds will be provided by Testing Agency using ultrasonic or other non-destructive tests.
 - a. Ultrasonic tests will be performed by specifically trained, qualified technicians, who will operate the equipment, visually examine the welds and will maintain records of welds examined, defects found and disposition of each defect. Technician will sign each weld that he or she inspects.
 - b. Inspection instrumentation will be calibrated by the Testing Agency in accord with AWS D1.1.
 - c. Welds requiring ultrasonic testing will be tested at an initial rate of 100% in order to authenticate the qualifications of each welder and each welding operator. Where the rejection rate is found to be less than 5% of the welds tested, the frequency of testing may be reduced to 25%. Where the rate of rejection increases to 5% or above, the inspection rate will again be increased to 100% until the defect rate is reduced to less than 5%. Percentages will be calculated for each welder separately.
- 9. Where ultrasonic indications arising from the weld root can be interpreted as either a weld defect or a back-up bar, the bar shall be removed by Contractor and back-welded, where required. The weld will then be retested. Questionable root indications, where no defect is found, will not be counted against the welder's rejection rate.
- 10. Approximately 25% of groove welds accomplished in the shop will be retested in the field. Retesting will not take place until the welds are not less than 4 days old. Similarly, approximately 25% of material stressed transverse to the grain will be retested for laminar tearing.
- 11. Perform Special Inspection of post-installed anchors in accordance with the Building Code, Manufacturer's Printed Installation Instructions, approved independent testing report per ACI 355, Contract Documents and approved shop drawings. As a minimum, provide continuous inspection of adhesive anchors installed in horizontal, or upwardly inclined orientations, supporting tension loads; and periodic inspection of all other conditions of post-installed anchors. Special Inspectors shall be qualified (via experience, training, ACI/CRSI certification, etc.) with the installation and inspection of post-installed anchors. Special Inspections shall include but are not limited to the following:
 - a. Verify installer qualifications as required per the Contract Documents;
 - b. Verify anchor type, material, size, length, and condition;
 - c. Verify minimum concrete age, temperature, strength, and dry condition;
 - d. Verify drilling method, hole cleaning, preparation per Manufacturer's Printed Installation Instructions; and

- e. Verify anchor position, setting, and installation method
- C. Authorizations: Owner's Testing Agency will not be authorized to:
 - 1. Authorize or accept deviations or substitutions from the Contract Documents.
 - 2. Assume any of the responsibilities of Contractor; for example, Testing Agency may not advise formally or informally on any aspect of construction means, methods, techniques, sequences or procedures, or safety precautions and programs in connection with the Work.
 - 3. Accept Shop Drawings or samples.
 - 4. Approve or issue a Certificate of Payment, a Change Order, or issue verbal instructions which modify the Contract between Owner and Contractor.
- D. Responsibilities and Duties of Contractor:
 - 1. Performance or waiving of inspection, testing or surveillance by Testing Agency for a given portion of the Work will not relieve Contractor from responsibility to conform strictly to the requirements of the Contract Documents.
 - 2. Access to Documents, Facilities and Materials: Furnish one copy of each accepted Shop Drawing and of each mill test certificate to Testing Agency. Provide reasonable office, desk and file space at each fabrication plant and at the site to allow Testing Agency to conveniently work with and to maintain project records and drawings. Provide authorized personnel convenient and free access to all parts, locations and areas of Work, including storage areas. Provide representative samples, coupons and the like as requested by Testing Agency. Provide hoisting, turning and moving of materials and reasonable quantities of scaffolding, power, casual labor, and other provisions and assistance necessary to allow quality and effective inspection and testing of Work.
 - 3. Notice: Provide reasonable notice of the initiation of Work, including fabrication or erection requiring plant or jobsite testing or inspection.
 - 4. Cost of Owner's Tests by Testing Agency will be borne by Owner. However, where additional tests are deemed necessary on account of failure to pass tests, the cost of additional testing will be deducted from payments to Contractor so as to reduce the Contract price.

1.8 QUALITY ASSURANCE

- A. Source Quality Control: Contractor's material control procedures shall be effective and shall assure that all Work fulfills the requirements of the project as well as the applicable provisions of the Contract Documents. All structural steel shall be identified and all material shall be tested in accord with the requirements of Building Code, of Building Department, of governmental authorities having jurisdiction and of this Specification.
- B. Shop and Construction Site Quality Control: Contractor shall maintain, on staff, sufficient office, field engineering, and field supervision staff to assure that all data and layout drawings for Work of other Sections is transmitted to detailers to allow proper detailing of holes, penetrations, chases, and the like and to assure proper execution of the Work in the field.
 - 1. Contractor's inspectors shall mark each weld or bolt inspected with an identifying mark. Such inspectors who provide inspections of poor quality shall be assigned to other projects or shall be retrained prior to reassignment to the Work.
- C. Steel Fabricator: Fabricator shall have experience in the fabrication of structural steel for at least five (5) buildings of the type of this Work, and shall, within the last five (5) consecutive years, have successfully completed in a timely fashion at least two (2) projects similar in scope and type to the required work of this Section, and shall possess all capabilities and qualifications required for AISC Cbd (Complex Steel Buildings) Certification.

- D. Steel Erector: The Erector performing the Work of this Section must, within the last five (5) consecutive years, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work for this Section.
- E. Structural Steel Detailer: Should Contractor or the structural steel subcontractor elect to subcontract any portion of the steel detailing Work, the structural steel detailing firm shall be subject to acceptance. As a minimum requirement for acceptance, the structural detailing firm shall demonstrate experience in detailing of not less than five (5) buildings of the type of this work and shall demonstrate in-house quality control procedures to the satisfaction of Construction Manager and of Architect.
 - 1. Acceptance of subcontract detailing firm is provisional and may be withdrawn where detailing is not of sufficient quality to meet project requirements.
- F. Bolt Installation shall be in accord with the provisions of this Specification and in no case less than the best industry practice.
 - 1. A qualified representative of the manufacturer shall be present for the start-up installation of each bolt type (DTI and/or TCF) used in the Work. For DTI's, a representative of the bolt manufacturer and a representative of the DTI manufacturer shall be present.
 - 2. All members of bolting crews shall be fully instructed and experienced in the bolt tensioning system(s) employed in the Work.
 - a. Each bolter, both shop and field, shall sign his own name immediately adjacent to each bolt group tensioned by that bolter. Such bolters who fail to follow proper procedures for snugging steel plies or fail to provide proper tension in bolts shall be retrained prior to reassignment to the Work or shall be removed from the Work.
- G. Welding Procedure Qualification: Each welding procedure shall be described fully in a welding procedure specification and shall be designated prequalified under AWS D1.1 or shall be qualified in accord with provisions of AWS D1.1 and of Building Code prior to use in the Work.
- H. Welder Qualification: Welders and welding operators performing work under this Section shall be qualified in accordance with Building Code and with applicable AWS requirements for each specific welding procedure and process which the welder will use in the Work.
 - 1. Contractor shall, when requested, require any welder to be retested; retesting, when requested, shall be performed with no additional compensation to Contractor.
 - 2. Welder, both shop and field, shall sign his own name immediately adjacent to each weld accomplished by that welder. Such welders who provide welds of poor quality shall be removed from the Work and shall be assigned to other projects or shall be retrained prior to reassignment to the Work.
 - a. In addition to normal quality assurance testing by Contractor, all welds not signed shall be tested by Contractor by UT, MT or other appropriate method accepted by Structural Engineer.
- I. Qualifications: Contractor shall determine, shall warrant and shall certify that producer, detailer, fabricator, erector, materials suppliers and all others involved in the Work, along with their personnel, are experienced, qualified and adequately staffed to undertake the specific Work required under this Section.
- J. Post-Installed Anchors shall be installed by workers with experience and training with installing the specified anchors. Installation of adhesive anchors in horizontal or upwardly inclined orientations supporting tension load shall be performed by installers certified through the ACI/CRSI adhesive anchor installer certification program, or approved equivalent.
- K. Documentation of Contract Conformance: Perform quality control functions required to achieve and to document that Work conforms to the Contract Documents. Provide access to Contractor's quality control documents and reports upon request. Provide reasonable numbers of copies of specific quality control reports on request.

1. Contractor shall monitor initial fabrication and from time-to-time during the fabrication period, and shall inspect each delivery prior to loading for shipment. Contractor's monitoring and inspection shall assess the quality of fabricated material by visual inspections, checking of all material test reports, checking of all welding, bolting and other fabrication test reports and the evaluation of quality control procedures through which the fabricated material has passed.
 - L. Purchase Orders: Each purchase order shall identify the end use of the purchased material. Contractor shall ensure that manufacturer or vendor understands fully the intended use of the material in the Work. Provide manufacturers and vendors with a copy of this Section of the Project Specifications.
- 1.9 PRODUCT DELIVERY, STORAGE AND HANDLING
- A. Delivery of Materials to be Installed Under Other Sections:
 1. Anchor bolts, embedded plates, anchorage devices, and other items required to be embedded in cast-in-place concrete shall be delivered to the project site at times coordinated by Contractor to allow convenient installation and orderly cast-in-place concrete operations.
 2. Include setting drawings, templates, and directions for installation with all anchor bolts and with all other items or devices furnished and delivered to the project site for installation under other Sections of this Specification.
 - B. Storage of Materials:
 1. Structural steel members and materials, whether or not fabricated, which are stored on or off the project site shall be supported above ground on platforms, skids or other supports. Where applicable, stacked members shall be separated by effective softeners. Storage methods shall protect steel members from overstress, permanent deformation and other damage.
 2. Structural steel members and parts shall be protected from corrosion. Storage methods shall provide for free and rapid drainage of rainwater and shall prevent collection of water on or within stored members.
 3. Materials shall be delivered to the site, ready for use, in the manufacturer's original and unopened containers and packaging, bearing labels as to type of material, brand name, and manufacturer's name.
 4. Packaged materials shall be stored under cover in dry, weathertight, adequately ventilated and clean locations off the ground. Delivered materials which are damaged or otherwise not suitable for installation, shall be removed from the jobsite and replaced with accepted materials.
 5. All fastener components shall be protected from dirt and moisture in closed containers at the site of installation. Only as many fastener components as are anticipated to be installed during the work shift shall be taken from protected storage. Fastener components that are not incorporated into the Work shall be returned to protected storage. Fastener components shall not be cleaned or modified from the as-delivered condition. Post-installed anchors shall be stored in accordance with manufacturer's requirements.
 - C. Identification: Provide and maintain identification of all steels furnished to a specified minimum yield strength greater than 36 ksi (Grade 235) in accordance with ASTM A6.
 - D. Painted Steel:
 1. Handling, Shipping and Erecting of shop painted steel pieces shall not be performed until the paint has dried thoroughly. Special care shall be taken to avoid abrasion or other damage to painted surfaces. Stacking and storing of painted members in the shop, in transit, and at the jobsite shall be done using appropriate softeners and timbers suitable to protect the paint from damage and to keep individual members free from contact with the ground and with each other.

- 2. Contractor shall furnish members in-place, fully painted, including all touch-up painting required as specified herein, at all locations where painting is required in the Drawings, by the provisions of this Specification, and by Building Code.
- E. Cleaning: Subsequent to shipment and prior to erecting into the Work, Contractor shall clean steel to the extent required to allow full bond of paint or of fireproofing materials, as appropriate.
- F. Delivered Materials shall be identical to accepted samples.
- G. Removal: Delivered materials which are damaged or otherwise not suitable for installation, shall be removed from the jobsite and replaced with acceptable materials.

1.10 JOB CONDITIONS

- A. Contractor's Responsibility: Contractor shall be solely responsible for the correctness of dimensions and quantities and for the fitting to other Work; for Work to be confirmed and correlated at the site; for information pertaining to the fabrication procedure or to the means, methods, techniques, sequences and procedures of construction; and for the coordination of the Work of this Section with the Work of all other trades. The verification of the physical interrelationships of elements of the Work from Contract Documents and in the field is solely Contractor's responsibility. Review of Contractor's submissions does not relieve Contractor from these responsibilities.
- B. Contractor's Coordination: Contractor shall coordinate and schedule the Work of this Section with the Work of other Sections of this Specification in order to optimize quality and to avoid delay in overall job progress.
- C. Rejection of Work: Testing Agency may inspect and test materials at the source before shipment as well as at the site before, during or after installation in the Work. Construction Manager and Architect reserve the right, at any time before final acceptance of the completed Work, to reject material not conforming with specified requirements, regardless of previous tests, inspections, acceptances, or inclusion in certificates of payment.
- D. Provisions for Other Work: The Work under this Section shall include required cutting, punching, drilling, welding and all else required for the attachment and the passing-through of other Work.
- E. Diagonal bracing shall be located on column centers unless shown specifically to the contrary in the Structural Drawings.
- F. Construction Sequence: Descriptions of limitations on construction sequence are intended to assist Contractor in coordinating the Work of the Project. Descriptions do not describe fully the limitations given, do not describe all limitations, nor do they preclude construction sequences not contemplated herein. Whether or not Contractor follows the limitations on construction sequence described herein, and until such time as the structural work is completed, Contractor remains fully responsible for both the stability and the safety of the Work; adherence to the limitations described herein does not relieve Contractor from that responsibility.
 - 1. Generally, the structure is to be constructed from the bottom to the top, floor-by-floor, with Contractor supplying such temporary bracing and shoring as may be required to compensate for the lack of completion of portions of the construction.
 - 2. Plan and accomplish construction sequence in accord with Structural, Architectural, Mechanical, Electrical and all other Drawings forming a part of the Work.
 - 3. Sealing of Erection Drawings by Contractor's Professional Engineer shall include and imply a full review of construction sequence and of related operations. Alternatively, Contractor shall submit a letter bearing the seal and signature of Contractor's Professional Engineer attesting to conformance with this requirement.
- G. Construction Loads: The structure is designed to resist safely the loading prescribed by Building Code for the finished building. No provision is included for loads or stresses imposed or induced by Contractor's

means and methods of construction. Design loads are provided in Building Code but are sometimes modified upward as provided in Structural Engineer's Design Criteria.

1. Where Contractor elects to place loads on the structure or elects to otherwise load or deform the structure in excess of the design loads, Contractor shall submit drawings and supporting calculations prepared under the supervision of and sealed by Contractor's Professional Engineer.
 - a. Review of Contractor's submittal shall not relieve Contractor from full responsibility for Contractor's means and methods of construction.
 - b. Review of Contractor's submittal will be treated as a Substitution or Deviation, as provided under Article 1.12.
 2. Alternatively, Contractor may seek professional services from Structural Engineer. Such services may be obtained through Owner or, with the permission of Owner, may be obtained directly from Structural Engineer. Architect will not be involved contractually in any such services.
- H. Accidents and Hazardous Conditions: Contractor shall prepare a detailed written report of all accidents and other occurrences involving death, significant personal injury and/or significant losses in tangible property and shall submit the report promptly.
- I. Installing and Rigging Equipment: Contractor shall shore all construction susceptible to impact loading from the installation of equipment installed by other trades.
1. Such equipment shall include but shall not be limited to boilers, chillers, refrigeration equipment, pumps, transformers, elevator machines and the like.
 2. Remove shoring when equipment installation is complete.
- J. Quantities: Contractor's bid shall be for all Work. Apparent omissions or conflicts in the Documents shall be reported at the time of discovery.

1.11 DEFICIENT WORK

- A. Repairing, Patching, Cleaning: Contractor shall correct all deficiencies in the Work of this Specification, including areas where Testing Agency reports, or Construction Manager's or Architect's rejections have indicated that Work is not in full compliance with the Contract Documents. Perform, at no expense to Owner, all additional tests that Construction Manager or Architect deem necessary to reconfirm noncompliance of the original Work and perform, at no expense to Owner, all tests and inspections which may be necessary to show compliance of corrected Work.
- B. Defective and Nonconforming Work: Defective Work, unsuitable Work or Work otherwise failing to conform to the Contract Documents shall be made good by Contractor at no change in the amount of the Contract. Contractor shall prepare appropriate details and procedures for bringing such Work into conformance with the Contract Documents and shall submit such details and procedures for acceptance. Corrective Work, including materials, shall conform strictly to accepted details and procedures. Nonconforming Work may be rejected at any time, regardless of prior acceptance in Shop Drawings, prior inspection, inclusion in inspection or test reports, or inclusion in certificates of payment.
- C. Deficiencies: Where Work exhibits any one or more of the following Deficiencies, or where Work otherwise fails to conform to the requirements of the Contract Documents or to the requirements of Building Code, for any reason or combination of reasons, such Work shall be considered Deficient and not in conformance with the requirements of the Contract:
1. Bent, twisted, buckled or warped pieces.
 2. Unauthorized cutting, reaming and so forth.
 3. Materials or workmanship not in accord with the Drawings, with the Specifications, with accepted samples, or with referenced codes or standards.

4. Cracking, interior or surface defects and the like.
 5. Exceedance of tolerances.
 6. Painted, unpainted or galvanized surfaces not sufficiently clean to provide full bonding of spray fireproofing, paint or other coatings.
 7. Tops of flanges not sufficiently clean to receive field-applied stud shear connectors or deck welding.
 8. Post-installed anchors not set in accordance with Manufacturer's Printed Installation Instructions, adhesive anchors not set with insufficient adhesive (no overfill visible).
- D. Replacement or Repair: Where Architect, at its sole discretion, finds any deficiencies or other Work not in accord with the requirements of the Contract Documents, Construction Manager or Architect may order that the affected Work be replaced or repaired at Contractor's expense.
1. Contractor shall reimburse Owner for the actual amount of the fees of Testing Agency for the reinspection and the retesting of Work deemed defective by Construction Manager or by Architect.
- E. Cost: The cost of all other activities and procedures associated with defective Work shall be paid by Contractor.

1.12 PRE-CONSTRUCTION CONFERENCE

- A. Function: Within 30 days following Notice to Proceed, Contractor shall schedule a meeting at a mutually agreed time, the meeting to include Contractor, Fabricator, Erector, Construction Manager, Architect and Structural Engineer. The principal function of the Pre-Construction Conference is to clarify matters involving the construction of the project, including the requirements of coordination and scheduling. Such technical matters as may be of concern to Contractor are proper topics for this Conference.
1. While minutes shall be prepared and distributed by Contractor, discussions that take place during the course of the Conference, including the minutes of those discussions, do not modify construction requirements or the content of the Contract Documents. Such modifications are accomplished only through the issuing of formal, written instructions.
 2. Be prepared to discuss all aspects of construction coordination, construction sequence, quality control, welding and bolting procedures and the like. Submit an agenda, in writing and in advance of Conference.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Structural Steel furnished for each location shall provide the minimum yield point given in the Drawings, shall conform to the applicable ASTM Steel Specification, shall meet the requirements of Building Code, shall be suitable for use in welded structures and shall meet the requirements both of the Drawings and of this Specification. All material shall be new and of best commercial quality. Steels produced to modified ASTM Specifications shall not be used without written acceptance. Except where specific products are given in the Drawings or in this Specification, structural steel used in the Work may be chosen by Contractor from the applicable specifications listed in AISC Specification and accepted by both Building Code and by governing agencies having jurisdiction.
1. Contractor, in ordering materials from manufacturers and vendors, shall ensure that the manufacturer or vendor understands fully the intended use of the as-fabricated and as-erected Work. Provide manufacturers and vendors with a full copy of this Section. Purchase orders shall identify the end use of purchased materials.

It is the intent of these provisions to assist producer in the selection of materials best suited for the intended purpose.

2. Unless noted specifically as not carrying tensile loads or detailed as bolted, all steels and products selected for use in the Work shall be suitable for use as tension members, connected by welding.

2.2 MATERIALS

- A. Welding Materials shall be as required by Building Code and by AWS for the conditions of intended use and for the metal being welded. Provide welding materials with as-welded Charpy V-Notch impact values of not less than 20 ft-lb at 0°F (27 N-m @ -18°C). Welding materials shall conform to the base metal/filler metal combinations listed in the AWS Specifications, except where other welding material or material combinations and related welding processes are accepted.

Welding electrodes which have been dampened or which have been contaminated by grease or other substances deleterious to welding shall not be used in the Work.

- B. Shielding Gas shall be of a welding grade having a dew point of -40°F (-40°C) or lower.
- C. Stud Shear Connectors: Material and equipment for welded studs and stud shear connectors shall conform to Building Code, to AWS D1.1 and to applicable portions of Section 05 30 00 "Metal Deck and Stud Shear Connectors". Material shall conform to AWS D1.1, Chapter 7, Type B and to ASTM A108, Grade 1015 or 1020, cold finished carbon steel, with dimensions conforming to AISC Specification. Accepted manufacturers are the Nelson Stud Welding Division of TRW, Midwest Fasteners, or other accepted manufacturer.
- D. Deformed Bar Anchors shall be ASTM A496 deformed bars prepared for stud welding in accordance with AWS D1.1. Material shall conform to AWS D1.1, Chapter 7, Type C. Accepted manufacturer is the Nelson Stud Welding Division of TRW or other accepted manufacturer. Provide 1/2 inch (12 mm) diameter, 36 inch (1000 mm) long bars, unless otherwise given in drawings.
- E. High Tensile Bolts, Tension Control Fasteners, Nuts, DTI's and Washers shall conform to the applicable ASTM specification shown in Table 2.2-3.

TABLE 2.2-3			
Bolts	Nuts	DTI's	Washers
ASTM A325 (Type 1), ASTM F1852 (TCF), and ASTM A490 (Type 1)	ASTM A563 (DH)	ASTM F959	ASTM F436

NOTE: Neither A490 Type 2, A490 Type 3, nor A325 Type 3 shall be used in the work.

All fastener components shall bear the manufacturer's mark; nuts shall bear the DH symbol. Sleeve nuts, clevises and the like shall develop the full strength of the threaded rod or bolt. All bolts, nuts and washers shall be cold forged; bolts shall have rolled threads. Neither hot forged bolts or nuts nor cut threads may be used in the Work.

1. In addition to the mandatory testing provided in the ASTM specification, proof load testing (ASTM F606), chemical analysis (ASTM A751) and certification shall be required of manufacturer; for galvanized bolts, nuts and washers, manufacturer's certification shall include the results of the rotational-capacity tests as well as the results of the zinc thickness measurements. Except for the rotational-capacity tests of galvanized bolt, nut and washer assemblies, which shall be performed in accord with the Shipping Lot Method, all testing and analysis shall be conducted in accord with the Production Lot Method. Testing shall be completed for each grade of each type of each size of fastener. Fastener components not in full conformance to the appropriate ASTM specification shall not be shipped to the Work.
- a. Proof load testing shall be conducted on full-size bolts and components not on machined test specimens.

- b. Proof load testing shall be accomplished using Method 1 (Length Measurement) of Method F606.
 - c. Testing shall include both hardness and tensile strength.
 - 2. Bolts, nuts and washers shall be manufactured by a member of the Industrial Fasteners Institute.
 - 3. Accepted manufacturers are:
 - a. LeJeune Bolt Company
 - b. Infasco
 - c. Nucor Fastener
 - d. Unytite
 - e. Lohr Structural Fastener
 - f. Other where accepted.
 - 4. Mechanical galvanized bolts, nuts, washers, DTI's and inserts, as applicable, conforming to ASTM B695, Class 50 shall be used at all surfaces containing galvanized materials and at all surfaces exposed to ambient temperature. Galvanizing shall be undertaken only on A325, Type 1 bolts, ASTM A563 DH nuts, ASTM F959 DTI's, and F436 heat treated washers. ASTM F1852 tension control fasteners shall not be galvanized by any process.
 - 5. Beveled washers shall be square, smooth, and shall be sloped to provide contact surfaces in full bearing. Provide for all slopes of 1:20 and larger.
 - 6. The diameter of holes in special, beveled and square washers shall not exceed 1/16" the diameter of bolt holes.
 - 7. Thread Lubrication shall conform to bolt manufacturer's written recommendation. All galvanized A563 nuts shall be provided with an additional lubricant that shall be clean and dry to the touch and have a color that contrasts with the zinc coating so its presence is visually obvious. Galvanized structural bolts shall be Rotational Capacity Tested in accordance with the provisions of ASTM A325, and a record of such tests for each lot shall be submitted to the Structural Engineer.
- F. Bolt Tension Indicating Devices shall be direct-tension indicating washers (DTI) or tension control fasteners (TCF).
 - 1. Direct-tension indicating washers shall be of domestic manufacture, containing only domestically produced raw materials, conforming to the latest revision of ASTM F959. No 'squir-type' DTI's are to be used, nor DTI's with slots cut in the back. Accepted manufacturers are TurnaSure LLC, Bethfast Inc., or other where accepted. Provide mechanically galvanized (ASTM B695, Class 50) washers for all surfaces and assemblies containing galvanized materials.
 - 2. Tension control fasteners shall conform to the latest revision of ASTM F1852 for the A325 strength level, and to the applicable provisions of ASTM A490 Type I as well as the provisions of Section 2.8 of the RCSC Specification pertaining to Alternative-Design Fasteners. Accepted manufacturers are LeJeune Bolt Company, Infasco, Vermont Fasteners Manufacturing, or other where accepted.
 - a. Neither A490 Type 2, A490 Type 3 nor A325 Type 3 shall be used in the Work.
- G. Unfinished Bolts shall be ASTM A307, Grade A, regular low carbon steel hexagonal heads and nuts.
 - 1. Nuts for ASTM A307 bolts shall be ASTM A563, Grade A (heavy hex for bolts larger than 1 1/2 inch diameter) nuts installed with thread locking compound, ESNA elastic stop nuts by McLean-Fogg or SPS Technologies, or other accepted nut.

2. Washers for A307 bolts shall conform to American Standard B18.22.1, Type B or to ASTM F436.
- H. Anchor Bolts: May be of uncoated steel unless otherwise required by the Drawings, by Building Code or by governmental authorities having jurisdiction. Unless otherwise provided in the Drawings provide 1 inch (25 mm) diameter or larger.
1. Unless otherwise given, provide as follows:
 - a. Bolt material conforming to ASTM A36 FY 36 (245 MPa).
 - b. Two heavy hex nuts as specified for ASTM A325.
 - c. 3 x 3 x 3/8 (75x75x10 mm), FY 36 (245 MPa) plate washer.
 2. Where designated A449, provide as follows:
 - a. Bolt material conforming to ASTM A449.
 - b. Two heavy hex nuts as specified for ASTM A325.
 - c. 3 x 3 x 1/2 (75x75x12 mm), FY 50 (345 MPa) plate washer.
 3. Where designated Dywidag, provide as follows:
 - a. Threadbars conforming to ASTM A615 except for marking.
 - b. Hex nut (developing not less than 100% of the yield strength of the bar) plus lock nut.
 - c. 3 x 3 x 1/2 (75x75x12 mm), FY 50 (345 MPa) plate washer.
- I. Post-Installed Mechanical Anchors shall be either expansion or undercut type. Where substitutions are requested, the alternate anchor shall be similar in type to that specified in the Contract Documents and be designed in accordance with substitution requirements.
1. Standard Wedge-Type Expansion Anchors:
 - a. Kwik Bolt 3 and TZ, by Hilti Corp.
 - b. Power-Stud+ SD1 and SD2, by Power Fasteners Inc.
 - c. Strong-Bolt 2, by Simpson Stront-Tie
 - d. Other where accepted
 2. Heavy-Duty Wedge-Type Expansion Anchors:
 - a. HSL 3 Heavy Duty Sleeve Anchor, by Hilti Corp.
 - b. Power-Bolt, by Powers Fasteners Inc.
 - c. Other where accepted
 3. Undercut Expansion Anchors:
 - a. HDA Undercut Anchor, by Hilti Corp.
 - b. Atomic+, by Powers Fasteners Inc.
 - c. Torq-Cut, by Simpson Strong-Tie
 - d. Other where accepted

4. Galvanizing shall conform to ASTM B 695, Class 50 or to ASTM B 633, SC1.
- J. Post-Installed Adhesive Anchors shall be either acrylic or epoxy, injectable type. Where substitutions are requested, the alternate adhesive shall be similar in type to that specified in the Contract Documents and be designed in accordance with substitution requirements.
 1. Acrylic or Vinylester Adhesive:
 - a. HY200, by Hilti Corp.
 - b. AC100+ Gold, by Powers Fasteners Inc.
 - c. Other where accepted
 2. Epoxy Adhesive:
 - a. Hilti RE 500 V3, by Hilti Corp
 - b. PE1000+, by Powers Fasteners Inc.
 - c. SET-XP, by Simpson Strong-Tie
 - d. Other where accepted
 3. Galvanizing shall conform to ASTM B 695, Class 50 or to ASTM B 633, SC1.
- K. Thread Locking Compound shall be Loc-Tite 242 or 243, as appropriate, by Loctite Corporation, or other accepted compound.
- L. Steel Deck Support Shelves: Provide angles of 5/16 inch (8 mm) minimum thickness and 3 inch (75 mm) minimum width except where different shapes or dimensions are accepted.
- M. Shop and Field-Applied Paint shall be provided where designated in the Drawings, specified herein, and where required by Building Code. Paint materials shall be fully compatible with fireproofing and other materials in contact with the paint and shall be selected from the following:
 1. Alkyd Modified Shop Primer and Field Touch-Up:
 - a. Carbocoat 150 Primer, by Carboline Inc.
 - b. Dulux Alkyd Primer 681-FD, by DuPont Co.
 - c. Tnemec Primer 10-99, by Tnemec Company Inc.
 - d. Other where accepted
 2. Zinc-Rich Shop Primer:
 - a. Carbozinc 11 HS or Carbozinc 859, by Carboline Inc.
 - b. Ganicin 347-Y-931, by DuPont Co.
 - c. Tnemec-Zinc 90-96 or Tnemec-Zinc 90-97, by Tnemec Company Inc.
 - d. Other where accepted
 3. Zinc-Rich Field Touch-Up:
 - a. Carbozinc 859, by Carboline Inc.
 - b. Ganicin 347-Y-937, by DuPont Co.

- c. Tneme-Zinc 90-97 by Tnemec Company Inc.
 - d. Other where accepted
- N. Weldable Primer shall be used for the protection of beveled surfaces to be complete penetration or partial penetration welded in the field. Weldable primer is also acceptable for the protection of milled surfaces used in bearing connections. Acceptable primers are CarboWeld 11 HS by Carboline, Deoxalumite by AACO, or other accepted weldable primer.
- O. Milled Surfaces: Coat with Multi-Bond 120 (Carbo-Crylic), by Carboline Inc., or other accepted rust-inhibitive coating.

PART 3 - EXECUTION

3.1 CONTRACTOR'S INSPECTION

- A. Examination of Field Conditions: Examine all surfaces, features and facilities to which Work must be attached or applied, abut or clear. Notify Construction Manager and Architect in writing of all conditions which are or will be detrimental to proper and expeditious installation of Work. Starting of Work shall represent acceptance by Contractor of surfaces and of conditions as suitable and correct for performing Work as specified.
- B. Field Measurements: Contractor shall verify, by measurements at the jobsite, all dimensions affecting the Work of this Section. Field dimensions at variance with those in accepted Shop Drawings shall be reported in writing by Contractor. Decisions regarding corrective measures shall be subject to acceptance and acceptance shall be obtained before starting fabrication of items affected. The starting of Work shall represent acceptance by Contractor of all dimensions affecting the Work of this Section as suitable and correct for the performing of all Work under this Section.

3.2 FABRICATION

- A. Structural Steel shall be shop fabricated in strict accord with Shop Drawings, certificates, and other accepted data. All Work shall conform to the applicable Standard as given herein and as need apply to the Work. Workmanship shall be of the best practice of relevant trades and shall be performed by skilled mechanics making use of modern tools and equipment in good condition. To the extent practical, Work shall be accomplished in the shop and not in the field.
- B. Material Delivery Tolerances: While ASTM A6 and A20 are acceptable delivery tolerances for mill material, Contractor shall straighten, square, flatten and torsionally align plates and shapes as necessary to provide fabricated elements within allowable tolerances as well as to provide correct alignment, good fit and uniform erection clearance, as applicable.
- C. Cleaning and Straightening: Prior to fabrication or Work, all steel shall be examined for confirmation to the delivery tolerances. All out-of-tolerance conditions shall be corrected prior to fabrication by making use of techniques accepted under this Specification. Steel shall then be cleaned by blasting and/or wire brushed so as to remove all loose mill, scale and rust.
- D. Camber and Sweep: Except where specific camber or sweep is designated in the Drawings, beams shall be fabricated with natural camber up. Provide spandrels and beams adjacent to openings with the natural sweep inward (toward the building and away from immediately adjacent openings). Designated camber shall provide actual camber in the erected steelwork within camber tolerances set forth in AISC Manual (for rolled shapes) and in AWS D1.1, Chapter 5.23 (for built-up shapes).
- E. Finishing shall mean milled to ASA 250 or smoother, unless another finishing method is both designated in Shop Drawings and accepted. Finished surfaces shall be protected by a corrosion inhibiting substance. Finish contact surfaces of grillages, base plates, column splices, where indicated "fit to bear", and at other locations where indicated in Drawings.
- F. Gas Cutting: Gas cutting, including miscellaneous cuts, copes, cuts for weld access and the like, shall provide smooth, uniform, workmanlike surfaces and shall achieve a 1000 micron surface roughness or

better as defined by ANSI/ASME B46.1. Except where accepted, gas cutting shall be machine guided; cutting by hand-guided tools will require grinding. Provide 1/2 inch (13 mm) minimum radius cut at all reentrant corners except where a smaller or larger radius for specific details is shown or noted in the Drawings or specifically proposed by Contractor and accepted in Shop Drawings. Gas cut surfaces shall be made uniform and notch-free by chipping, planing, welding and grinding as required, and shall be verified by Contractor by full visual inspection; where hand-held cutting tools are used, and where required by AISC Specification, Contractor shall provide 100% inspection by liquid-penetrant or by magnetic particle.

- G. Straightening: Fabricated materials containing sharp kinks or bends shall be rejected. Material straightened prior to fabrication shall be examined carefully for signs of distress and for other defects before being placed in fabrication. Distressed or otherwise defective material shall not be used in the Work. Straightening by the use of properly controlled heat will be permissible if done by personnel skilled in heat straightening, using equipment and techniques in accord with written procedure documents and applicable detail sketches prepared by the Fabricator and accepted. Submit straightening procedure for review.
- H. Grinding: Sharp corners, projections, and similar rough or sharp surfaces or edges shall be eased and smoothed by grinding so as to provide notch-free surfaces.
- I. Preheat: Welding shall be performed on material preheated to a temperature above the dewpoint, regardless of other preheating requirements. Preheat for welding shall be soaked preheat and shall be verified by heat sensitive crayons (Tempilstik, by Tempil, Inc.) or other accepted means.
- J. Welding Materials and processes shall be selected from those specified herein and shall conform to accepted welding procedure specifications. Welding materials shall be fresh and new. Welding electrodes or flux contaminated by deleterious substances or moisture shall not be used and shall be removed promptly from the Work. Low hydrogen electrodes which cannot be used promptly after opening of hermetically sealed containers shall be stored in electric holding ovens at 250°F (120°C) minimum. Electrodes or flux which have been dampened or contaminated shall be removed promptly from the Work.
- K. Tack Welds: Exercise the same degree of control in making tack welds as required for structural welds, including provision of preheat and postheat appropriate to the basemetals joined. Tack welds which crack shall be cut or ground and damaged base metal repaired. Remove and grind smooth tack welds not incorporated into permanent structural welds.
- L. Arc Strikes: Stray arcing between electrodes or other portions of the welding system and base metal locations outside structural welds shall be avoided to the maximum extent practicable. In those locations where arc strikes do occur, the affected base metal shall be ground smooth, or otherwise repaired, to remove the effects of the arc strike and ensure continuing soundness of the base metal.
- M. Shop Bolting with ASTM A325 or ASTM A490 bolts shall conform to applicable provisions of the AISC Specification and Specification for Structural Joints Using ASTM A325 or A490 Bolts except that all bolting provisions set forth in ERECTION of this Section shall apply to high-strength shop bolting.
- N. Drainage Holes: Provide hollow tubular, box and other members with effective drainage holes except where members are sealed tight at Contractor's option or in accord with notes and details included in the Drawings. Structural Steel Sub-Contractor is fully responsible to provide steelwork free of entrapped water at the completion of the project.
- O. Steel Deck Support Material shall be shop welded to structural steel except where field welding is necessary to provide required erection sequences.
- P. Bolt Holes: Drill or punch holes at right angles to the surface of the metal. Provide holes not more than 1/16 inch larger than the connector diameter unless oversize or slotted holes are shown or noted in the Drawings or specifically accepted. Do not make or enlarge holes by burning. Drill or sub-punch and ream material where thickness exceeds the connector diameter and in all material thicker than 7/8 inch (22 mm). Holes shall be true and fair without torn or ragged edges. Elongated punch and die sets shall be used to punch elongated holes. Burrs shall be removed.

- Q. Quality of Welds and Base Metal: Quality of all welds shall conform to AWS D1.1, Chapter 6 - Part C. When examined by UT, partial and complete penetration welds shall conform to AWS D1.1, Chapter 6 statically loaded acceptance criteria. Unless otherwise noted, welds shall be assumed to be subjected to tension stress normal to the weld axis. Cracking or incomplete penetration shall be cause for rejection of each weld possessing such defects, regardless of other acceptance or rejection criteria. Base metal containing gross discontinuities before or after welding or lamellar tearing after welding shall be repaired in accord with procedures accepted by Structural Engineer or shall be discarded and replaced.
1. Provide material thickness and width transitions in accord with details in the Drawings where shown, and in accord with the provisions of AWS D1.1, Article 2.29.
 2. Provide weld access holes or cuts in accord with details shown in the Drawings, the provisions of AWS D1.1, the provisions of the AISC Specification and the gas cutting provisions of this Specification. Plug access holes with defect-free base metal and weld metal where sealed members are required.
- R. Curved Members: Members shown in the Drawings to be curved shall be shop fabricated true to line and to a uniform smooth curvature by acceptable means.
- S. Stud Shear Connectors and Deformed Bar Anchors: Prepare structural steel surfaces as recommended by the stud manufacturer. Use automatic stud welding systems and use such systems in strict accord with the manufacturer's printed instructions. All welding ferrules shall be broken and shall be removed from the Work. Fillet welding shall be used for repair welding only. Arc weld repairs to stud welds shall be made to the extent required by AWS D1.1, Chapter 7. Conform to applicable provisions of Section 05 30 00.
1. Where indicated in the Drawings, bend deformed bar anchors in accordance with the Drawings and with this Specification:
 - a. Before automatic stud welding, cold bend deformed bar anchors as required in accordance with the bend requirements given in the Contract Documents for concrete reinforcing bars of the same diameter. The use of heat to either bend or straighten deformed bar anchors is not permitted.
 - b. Once bent, the shop straightening of either deformed bar anchors is not permitted. The field straightening of bars that have been embedded in concrete is not permitted except where accepted specifically.
- T. Brittle Fracture Contractor shall take all measures necessary to minimize the occurrence of brittle fracture. Measures shall include proper materials selection, fabrication techniques and the like.
1. Both base metal and welding materials shall provide adequate notch toughness.
 2. Stress concentrations shall be minimized by carefully controlling notches and by controlling weld defects such as lack of fusion and cold cracking. Stress relief holes shall be provided at all welded web-to-flange interfaces for shapes with flange thickness in excess of 1.0 inches (25 mm).
 3. Welds, including multiple-pass welds shall be completed in a single operation, without interruption.
 4. Cooling rates and non-uniformity of cooling of welds shall be reduced by proper insulating blankets and, where necessary, by post-heating.
 5. Excessive elevation of welding temperatures shall be avoided. Practices such as the simultaneous welding of both sides of a stiffener within the bosom of a wide flange shape shall not be allowed.
 6. Provide and then remove run-on and run-off tabs at all locations where start-up or termination portion of weld may create a stress raiser.
 7. Particular care shall be taken to eliminate cold cracking.

- a. Pre-heat and post-heat conditions shall be provided not less than as required per AWS D1.1.
 - b. Welding electrodes are assumed to be of the low hydrogen type, thoroughly baked, and that rust and oil in welding grooves is not present. Note that sufficient pre-heating, with lower heating rate and wider pre-heated zone is required in order to keep interpass temperatures above minimum values, particularly where heavier sections are being welded.
 - c. Weld cooling rate shall be controlled so as to reduce residual stresses caused by welding and to enhance hydrogen evolution.
 - d. Welding at ambient temperatures below 32°F (0°C) shall not be accomplished without prior acceptance.
8. Take special care to grind copes, access holes and other cuts so as to improve the surface and to reduce the potential for notch formation.
- U. Weld Inspection: Contractor shall inspect 100% of shop and field welds to assure that all welding conforms to the requirements of Contract Documents. Governing documents include, but are not limited to this Specification, Contract Drawings, Building Code and ANSI/AWS D1.1, D1.3, and D1.4. All inspections shall assume that welds are in tension, with direction of stress in most critical direction (for example, transverse to undercut).
- V. Runon and Runoff Tabs shall be removed and the surface made smooth prior to visual and non-destructive testing and prior to shipping Work to the site. Tabs for field welds shall be removed at all locations where required or directed.
- W. Clean, Paint and Galvanize steel as provided herein. Do not paint steel except where provided specifically herein or in the Drawings.

3.3 ERECTION

- A. Erection of steelwork shall be performed by skilled workers in accord with the accepted Shop Drawings and certificates and shall conform strictly to the Contract Documents.
- B. Surveys: Contractor shall employ a Professional Engineer or Professional Surveyor licensed in the project's jurisdiction and experienced in surveying steel building frameworks to oversee all survey work. Contractor shall organize structural steel surveying procedures and records to demonstrate the degree of conformance of the steelwork to tolerances applicable to plumb, level, horizontal alignment and allowable displacement from theoretical elevation. Contractor shall report all discrepancies. Contractor shall not proceed with each erection step until appropriate acceptable corrections have been made, or until compensating adjustments to the structural steelwork have been accepted. Contractor's surveys for steelwork shall:
- 1. Establish permanent bench marks as shown and as necessary for the accurate erection of structural steel;
 - 2. Assure that elevations of bearing surfaces, and locations of anchor devices are checked by accurate surveying before erection work proceeds.
 - 3. Provide survey data during the course of the Work and a final survey showing the E-W, N-S and elevation position of the work points of each steel frame, column and other major member as compared to theoretical location.
 - 4. Take surveys and measure tolerances and plumbness at 68°F (20°C) or show corrections to surveys where temperature is either higher or lower.
- C. Anchor Bolts and Other Connectors: Furnish anchor bolts, embedded plates and other connection materials which must be embedded into concrete Work, for placement under Section 03 30 00. Deliver to

the site on-time and complete with templates and placing drawings. Tighten nuts in a manner consistent with the intent and the metallurgy of the bolt material.

1. Unless otherwise provided, for bolts designated as A325 or Dywidag threadbars, tighten 1/4 turn past snug tight.
- D. Base Plates, Bearing Plates and Grillages: Furnish and place base plates and bearing plates accurately. Securely shim, level and align. Be responsible for maintaining steel in proper position through completion of grouting and until grout has achieved full strength. Non-shrink grout will be furnished and placed under Section 03 30 00. Do not allow grouting until beams, girders, trusses and so forth are permanently attached to column.
- E. Guying and Bracing: The structural system may require temporary bracing in addition to members shown in the Drawings in order to resist safely all imposed loads during construction and to maintain correct alignment. Provide temporary guying, bracing and connecting members where needed to resist safely all possible combinations of construction and erection loads including dead loads, erection loads, wind and other lateral loads and superimposed construction loads, both horizontal and vertical. Remove temporary members and connections after permanent members are in place, final connections are made and concrete has achieved design strength. Design of temporary shoring, bracing and guying is Contractor's sole and complete responsibility, including all details of installation and removal, methods, sequence and timing. Contractor's Professional Engineer shall design and supervise the adequacy, installation and removal of temporary bracing.
- F. Bolt Tensioning: ASTM A325 and A490 bolts shall be installed using one of the following systems:
1. Tension controlled fasteners with splined twist-off nubs (TCF) shall be installed in accord with AISC Specification requirements and with applicable printed instructions and recommendations provided by the fastener manufacturer and tensioning system supplier. To provide uniform and full tensioning in multi-bolt joints, bolts shall be tightened in stages to assure uniform contact between faying surfaces and snug-tight condition at all points within each joint prior to final tensioning and shearing of the spline.
 - a. Tension controlled fasteners (TCF) shall be included in the base bid for ASTM A325 bolt sizes equal to and less than 1-1/8 inch (29 mm) in diameter.
 - b. Contractor shall check each TCF bolt after tensioning to verify that the sheared surface does not display any abnormality. Bolts displaying an abnormality shall be removed and replaced.
 - c. As an alternative, Contractor may include in his bid an add or deduct price for use of direct-tension indicating washers (DTI) on ASTM A325 bolt sizes equal to and less than 1-1/8 inch (29 mm) diameter.
 2. Bolts 1 inch (25 mm) in diameter and larger and all ASTM A490 bolts shall be tensioned utilizing direct-tension indicating washers (DTI) in strict accord with ASTM F959. Under no circumstance may a DTI be reused. DTI washers shall not be used directly over slotted or oversized holes but shall be used in addition to all special washers required at slotted or oversize holes. Tensioning methods, number, thickness and type of washers, procedure and measurements shall be in strict accord with the manufacturer's latest printed instructions and recommendations and the latest requirements of the RCSC Specification.
 - a. Contractor shall verify correct tension by measuring the average residual gap between the bolt head or nut and the DTI in strict accord with ASTM F959. Torque wrenches or calibrated wrenches shall not be used to inspect or to verify the tension.
 - b. For bolts exposed to the weather, gaps in Type 325 DTI shall be reduced to less than 0.005 inches for not less than half of the perimeter of the DTI.
 3. Filler beams may, at Contractor's option, be connected without making use of a tension control device but, if so, shall be tensioned by the "match marked" turn-of-the-nut technique. Filler beams

do not frame to, or frame immediately adjacent to columns, do not frame to girders carrying columns, posts or hangers (except stair landing hangers), and do not frame to trusses.

4. Except where specifically waived in the Structural Drawings, all ASTM A325 and A490 bolts, whether or not used in bearing-type connections, shall be fully tensioned. This requirement shall be maintained whether or not required by AISC Specification.
- G. Bolting Requirements: Contractor shall pay strict attention to the applicable codes and standards, to the requirements of this Specification and to the following general requirements:
1. Impact Wrenches used for tightening ASTM A325 and ASTM A490 bolts shall be in sufficiently good repair to dependably deliver the manufacturer's full rated torque. Air compressor(s) used to power impact wrenches shall be in good repair and shall be capable of delivering adequate air pressure and volume so that full rated performance is achieved from each wrench at the point of bolting. Air hoses and couplings shall be non-leaking. The impact wrench(es) selected shall tighten the bolts to not less than the minimum specified tension in thirty seconds or less.
 - a. For bolt sizes equal to or larger than 1 inch (25 mm) ASTM A325 and 7/8 inch (22 mm) A490, provide impact wrenches equivalent to or larger in capacity than a Chicago Pneumatic CP6120, with air pressure at the wrench not less than 100 psi (700 kPa).
 2. Washers: A hardened washer shall be installed adjacent to the bearing face of the turned element (nut or bolt head) of each ASTM A325 or ASTM A490 bolt assembly. A 5/16 inch (8 mm) thick washer or thicker, otherwise conforming to ASTM F436, shall be used at both ends of 1-1/8 inch (28 mm) and 1-1/4 inch (32 mm) diameter A490 bolts connecting material with standard size holes where material is 5/8 inch (16 mm) or less in thickness.
 3. Long Slotted Holes, where accepted, and where on an outside ply, shall be covered completely by 5/16 inch (8 mm) ASTM F436 hardened washers; alternatively, either plate washers or continuous bars of at least 3/8 inch (10 mm) thickness and minimum yield point of $F_y = 50$ ksi (345 MPa) may be used. Holes in plate washers or bars shall be standard size. Regular hardened washers are required in addition to plate washers or bars.
 4. Short Slotted and Oversized Holes, where accepted, and where on an outside ply, shall be covered by ASTM F436 hardened washers, plate washers or continuous bars as provided for long slotted holes.
 5. Bolts and Nuts, at time of tightening, shall be clean, rust-free, free from thread damage, and shall retain not less than the light residual coating of oil as received from the factory. Thread lubricants shall be applied to all ASTM A490 bolts or nuts, to all 1 inch (25 mm) and larger ASTM A325 bolts and to all bolts and nuts that display any sign of loss of residual oil, rust or other contaminant. Where galvanized nuts are not wax-dipped by manufacturer, apply thread lubricant.
 - a. Lubrication shall be completed prior to assembly and prior to being sent up into the Work, except that under no circumstance shall twist-off type tension-control fasteners be field lubricated.
 - b. In the event of a dispute regarding tightness of bolts installed in the field, cleanliness and lubrication of bolts and nuts used for verification tests shall be specifically representative of field materials and conditions.
 6. Tightening Procedures: During tightening, to the full extent practical, the unturned bolt element shall be held without rotation. All plies shall first be brought into full contact by partially tensioning all of the bolts. Tensioning shall commence from the most rigid part of the connection, moving to the free edges.
 7. Retightening: ASTM A490 bolts and galvanized ASTM A325 bolts, once completely or partially tensioned, shall not be reused. ASTM A325 bolts may be reused only with specific written acceptance.

8. Length: Bolts shall not project beyond the face of the nut by more than three full threads. However, bolts shall at least be flush with the other face of the nut.
- H. ASTM A307 Grade A Bolts may be used only where permitted by the Structural Drawings. Threads shall be precluded from the faying surfaces. Tighten using full manual effort on a suitable wrench so as to bring all surfaces into full bearing. Bolt head shall be tapped throughout the tightening process.
- I. Unfair Holes shall not be enlarged by burning or drifting alone. Enlarge holes where necessary and permitted by flame piercing and reaming or by reaming alone or by other accepted means. Holes after enlargement shall be true round holes normal to the surfaces joined. Increase bolt size to fill enlarged and reamed holes, which shall then meet the requirements for "normal-sized" holes relative to the bolt size selected.
- J. Faying Surfaces: Paint materials not specified as satisfying the mean slip coefficient for Class A surfaces as defined in the Specification for Structural Joints Using ASTM A325 or A490 Bolts shall not be applied to faying surfaces.
- K. Field Welding shall be performed only by properly licensed and certified welders. Welders shall wear on their helmets labels showing their AWS Qualification Number and shall carry at all times AWS identification/ certification cards. Pay strict attention to the need for welder to sign his/her name near welds which they have made. All welding provisions set forth in FABRICATION of this Section shall apply to field welding. Field welding shall be performed in accord with accepted procedure specifications. Field welds shall be subject to the same acceptance criteria as shop welds. Do not weld over a shop weld in the field unless the field weld is made with the same electrode and the same weld procedure as used in the shop.
- L. Permanent Connections: Structural members shall be permanently attached and made rigid only after all elements to be attached have been brought within the specified tolerances.
- M. Field Fabrication, gas cutting and welding work shall conform to the applicable provisions of FABRICATION of this Section. Bent, kinked or deformed members may be rejected by Architect at its sole discretion. Such members may be straightened and corrected only in accord with accepted procedures. Gas cutting shall occur only where the metal being cut is not carrying stress, and provided stresses will not later be carried through a flame-cut surface.
- N. Finger Tight: Bolts designated as "finger tight" shall be tensioned to 60 inch-pounds (6 N-m) with the goals of bringing the parts firmly together while allowing for a sliding connection. Provide thread locking compound at all such locations. Provide not less than two full cycles of torquing and untorquing to ensure that all bolts are properly tensioned.
- O. Tolerances: Do not exceed tolerances provided under this Specification, AISC Code, AISC Specification, and AWS D1.1.
- P. Shims, where required to correct fit-up of Work, shall be free of corrosion and shall be of stainless steel.
- Q. Runoff and Runon Tabs shall be provided at the ends of all sensitive butt welds and both tabs and erection aids shall be removed at all locations where they interfere with the Work of other trades, and at all locations designated. Runoff tabs shall be not less than 1-1/4 inches (30 mm) in length.
- R. Post-Installed Anchors shown in the Drawings, or accepted in writing, shall be installed in strict accord with Manufacturer's Printed Installation Instructions. Set perpendicular to concrete surface. Anchors may be placed in block or brick work only where voids within 9 inches (230 mm) of the anchor have been filled solidly, with grout. Drilled holes shall be cleaned thoroughly by compressed air or water jet. Holes in structural steel, intended to fit over post-installed anchors, shall be 1/16th inch larger than the nominal diameter of the bolt except where larger or smaller holes are stipulated in the Drawings. Provide standard plate washer underneath Anchor Manufacturer's provided washer.
- S. Lock Nuts or Thread Locking Compound shall be used on all nuts not tensioned in accord with the specifications for ASTM A325 or ASTM A490 bolts and on all ASTM A307 bolts. Provide thread locking compound on A325 and A490 bolts only where allowed specifically in the Drawings; at other locations, use locking nuts as specified herein.

3.4 CLEANING, PAINTING AND GALVANIZING

- A. General: Steel Work shall be cleaned, painted or galvanized as provided herein. Basic Work shall be done in the shop, with field touch-up, only, done in the field.
- B. Corrosion Protection: This Specification contemplates 6 levels of corrosion protection:
 - 1. Concrete-Encased/Unpainted: Steel Work shall be cleaned to meet the requirements of SSPC-SP2, by wire brush or other means at the option of Contractor. Reclean following erection to the extent required to achieve original condition.
 - 2. Fireproofed/Unpainted: Steel Work shall be shop cleaned to meet the requirements of SSPC-SP3. Additional cleaning shall be accomplished in the field to ensure proper adherence of spray fireproofing.
 - 3. Fireproofed/Shop Primed: Provide as for Fireproofed/Unpainted, but paint with shop primer with field touch-up, not less than 2.0 mils nor more than 4.0 mils dry film thickness. For additional top coats, see Specifications 072180 and 099100.
 - 4. Shop Primed: Provide as for Fireproofed/Shop Primed.
 - 5. Exposed to Ambient Temperature: Steel which is enclosed, concrete-encased or fireproofed, but which is not protected from changes in ambient temperature, shall be cleaned to meet the requirements of SSPC-SP6 before painting with a zinc-rich primer with field touch-up, not less than 2.0 mils nor more than 4.0 mils dry film thickness. For additional top coats, see Specifications 072180 and 099100.
 - 6. Exposed to Weather: Steel which is exposed to the weather including exterior lintels shall be hot-dipped galvanized. Touch-up at welds and at damaged surfaces after first cleaning to SSPC-SP3, with slag and weld spatter removed first from all areas. Paint galvanized steel where shown in Drawings.
 - a. Provide galvanized bolts, nuts, washers, DTI's, and inserts, as applicable, for the bolting of galvanized members.
- C. Paint shall be applied only to dry surfaces, only at times when steel surface temperatures are above the dew point, and shall be applied thoroughly and evenly without sags or holidays. Paint shall be applied by suitable spray equipment in strict accord with the paint manufacturer's printed instructions. Provide a dry film thickness within the range specified herein, including around outside corners or other abrupt changes in surface profile.
- D. Field Touch-Up shall be provided to field bolts of painted and of galvanized components and to all points of damage, including areas receiving weld after coating.
 - 1. Unpainted surfaces shall be recleaned to the extent necessary to achieve sound tight bond of other Work.
 - 2. Painted surfaces shall be cleaned and painted to the standards of the shop coating and touch-up so as to provide for workmanlike surfaces and for tight bond of other Work.
 - 3. Galvanized surfaces shall be cleaned of slag and burned metal, by vigorous wire brushing and other tools, to base metal free from loose particles. Finish clean by solvents in accord with SSPC-SP1. Field-apply galvanizing touch-up to achieve quality of the original and undamaged shop coating.
 - 4. Coat no-paint areas after completion of erection.
- E. Contact with Aluminum: Surfaces which will be in contact with aluminum shall receive two coats of a dielectric separator over a shop-primed surface.

- F. Handling, Shipping, Storing and Erection of Painted Steel: Contractor shall exercise handling means as well as shipping, storage and erection techniques to reasonably protect painted surfaces from damage, abrasion and soiling in order to minimize the need for touch-up painting after erection. Shop paint shall be adequately dry to withstand handling without damage prior to moving or loading steel elements for storage or delivery.

END OF SECTION 051000

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. Lintels.
 - 3. Light steel framing and supports, not included as part of work of other trades.
 - 4. 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.
 - 5. Prime painting, touch-up painting, galvanizing and separation of dissimilar metals for work of this Section.
 - 6. 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

NOT USED

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

NOT USED

1.6 SUBMITTALS

- A. 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.
- B. 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.
- C. 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.
- D. 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.
- E. 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 Azeron Primer made by Tnemec, ICI Devoe "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. Galvanize 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 arises 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. Miscellaneous Steel Trim: Provide shapes and sizes for profiles shown. Except as otherwise indicated, fabricate units from structural steel shapes and plates and steel bars, with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible. Provide cutouts, fittings and anchorages as required for coordination of assembly and installation with other work.

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 061000

ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes
 - 1. Preservative treatment of wood; fire retardant treatment of wood; miscellaneous framing and sheathing; and back boards.
- B. Related Sections:
 - 1. Section 06 20 00 – Finish Carpentry.
 - 2. Section 09 29 00 – Gypsum Board Assemblies.

1.2 REFERENCES

- A. American Wood-Preservers' Association:
 - 1. AWWA M4 - Standard for the Care of Preservative-Treated Wood Products.
 - 2. AWWA U1 - Use Category System: User Specification for Treated Wood.
- B. ASTM International:
 - 1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 2. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
- C. Southern Pine Inspection Bureau:
 - 1. SPIB - Standard Grading Rules for Southern Pine Lumber.
- D. U. S Department of Commerce National Institute of Standards and Technology:
 - 1. DOC PS 1 - Construction and Industrial Plywood.
 - 2. DOC PS 2 - Performance Standard for Wood-Based Structural-Use Panels.
 - 3. DOC PS 20 - American Softwood Lumber Standard.

1.3 SUBMITTALS

- A. Product Data: Submit technical data on wood preservative and fire-retardant treatment materials.
- B. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with the following:
 - 1. Lumber Grading Agency: Certified by DOC PS 20.
 - 2. Wood Structural Panel Grading Agency: Certified by EWA - The Engineered Wood Association.
 - 3. Lumber: DOC PS 20.
 - 4. Wood Structural Panels: DOC PS 1 or DOC PS 2.
- B. Surface Burning Characteristics:
 - 1. Fire Retardant Treated Materials: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

- C. Apply label from agency approved by authority having jurisdiction to identify each preservative treated and fire-retardant treated material.

PART 2 PRODUCTS

2.1 LUMBER MATERIALS

- A. Lumber Grading Rules: SPIB.
- B. Non-structural Light Framing: Southern Yellow Pine species, grade 2, 19 percent maximum moisture content.
- C. Studding: Southern Yellow Pine species, grade 2, 19 percent maximum moisture content.
- D. Miscellaneous Framing: Southern Yellow Pine species, grade 2, 19 percent maximum moisture content.

2.2 PANEL PRODUCTS

- A. Telephone and Electrical Backboards and Plywood Nailers: EWA Rated Sheathing, Grade C-D; Exposure Durability 1; sanded, fire retardant treated.

2.3 BLOCKING

- A. Blocking: Solid lumber, nominal 2 inches thick

2.4 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Fasteners: Hot dipped galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
 - 2. Nails: ASTM F1667.
 - 3. Anchors: toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.

2.5 FACTORY WOOD TREATMENT

- A. Wood Preservative (Pressure Treatment): AWWA U1, Commodity Specification A-Sawn Products using water borne preservative.
- B. Fire Retardant Treatment: Chemically treated and pressure impregnated, having flame spread of 25 or less when tested in accordance with ASTM E 84 and showing no evidence of significant progressive combustion when test is continued for an additional 20-minute period, Interior Type.
- C. Moisture Content After Treatment: Kiln dried (KDAT).
 - 1. Lumber: Maximum 19 percent.
 - 2. Structural Panels: Maximum 15 percent.

PART 3 EXECUTION

3.1 FRAMING

- A. Set structural members level and plumb, in correct position.
- B. Fasten framing in accordance with applicable code.
- C. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in alignment until completion of erection and installation of permanent bracing.
- D. Place horizontal members, crown side up.
- E. Construct load bearing framing and curb members full length without splices.
- F. Double members at openings over 18 inches wide. Space short studs over and under opening to stud spacing.
- G. Bridge framing in excess of 8 feet span at mid-span. Fit solid blocking at ends of members.
- H. Curb roof openings [except where prefabricated curbs are provided. Form corners by alternating lapping side members.
- I. Coordinate curb installation with installation of decking and support of deck openings.

3.2 BLOCKING

- A. Install fireblocking to cut off concealed draft openings.
 - 1. Connections Between Horizontal and Vertical Spaces: Install fireblocking between vertical walls and partitions and the following:
 - a. Horizontal floor and roof framing.
- B. Provide blocking where indicated on the Drawings.
- C. Provide 4'x8' $\frac{3}{4}$ " plywood, beneath layer of gypsum wall board, on walls designated to receive large displays as indicated on the Drawings. These locations include room the Gallery Meeting Room #0400A, Grad Lounge #003 and West Meeting Room #003F.

3.3 TOLERANCES

- A. Framing Members: 1/4 inch from indicated position, maximum.

END OF SECTION

SECTION 062000

FINISH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Interior trim.

B. Related sections

1. Section 06 10 00 – Rough Carpentry
2. Section 06 40 23 – Interior Architectural Woodwork.

1.2 DEFINITIONS

A. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NHLA: National Hardwood Lumber Association.
3. NLGA: National Lumber Grades Authority.
4. SPIB: The Southern Pine Inspection Bureau.
5. WCLIB: West Coast Lumber Inspection Bureau.
6. WWPA: Western Wood Products Association.

1.3 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.

1. Include data for wood-preserved treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of

preservative retained. Include chemical treatment manufacturer's written instructions for finishing treated material.

2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. Samples for Verification:

1. For each species and cut of lumber and panel products with non-factory-applied finish, with 1/2 of exposed surface finished, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (200 by 250 mm) for panels.
2. For each finish system and color of lumber and panel products with factory-applied finish, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (200 by 250 mm) for panels.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect materials against weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels flat with spacers between each bundle to provide air circulation. Provide for air circulation within and around stacks and under temporary coverings.
- B. Deliver interior finish carpentry materials only when environmental conditions meet requirements specified for installation areas. If interior finish carpentry materials must be stored in other than installation areas, store only where environmental conditions meet requirements specified for installation areas.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install interior finish carpentry materials until building is enclosed and weatherproof, wet work in space is completed and nominally dry, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

- B. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged.
 - 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review.
 - 1. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.

3.2 RUNNING TRIM, PANELING AND SLATS

- A. Moldings for Opaque Finish (Painted): Made to patterns included in WMMPA WM 12.
 - 1. Hardwood Moldings: WMMPA HWM 2, P-grade.
 - a. Species: Yellow Poplar.
 - b. Maximum Moisture Content: 9 percent.
 - 2. Finger Jointing: Not allowed.
 - 3. Size and Profile: As indicated on the Drawings.
 - 4. Primed and painted

3.3 MISCELLANEOUS MATERIALS

- A. Fasteners for Interior Finish Carpentry: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.
 - 1. Where galvanized finish is indicated, provide fasteners and anchorages with hot-dip galvanized coating complying with ASTM A 153/A 153M.
- B. Glue: Aliphatic-resin, polyurethane, or resorcinol wood glue recommended by manufacturer for general carpentry use.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Before installing interior finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours (unless longer conditioning is recommended by manufacturer).

3.3 INSTALLATION, GENERAL

- A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
- B. Install interior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
 - 1. Scribe and cut interior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
 - 2. Countersink fasteners, fill surface flush, and sand where face fastening is unavoidable.
 - 3. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining interior finish carpentry with 1/32-inch maximum offset for flush installation and 1/16-inch maximum offset for reveal installation.
 - 4. Coordinate interior finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate interior finish carpentry.

3.4 RUNNING TRIM, PANELING AND SLATS INSTALLATION

- A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches (610 mm) long, except where necessary. Stagger joints in adjacent and related standing and running trim. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints. Plane backs of casings to provide uniform thickness across joints where necessary for alignment.
 - 1. Install trim after gypsum board joint finishing operations are completed.
 - 2. Drill pilot holes in hardwood before fastening to prevent splitting. Fasten to prevent movement or warping. Countersink fastener heads on exposed carpentry work and fill holes.
- B. 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.

3.5 ADJUSTING

- A. Replace interior finish carpentry that is damaged or does not comply with requirements. Interior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.6 CLEANING

- A. Clean interior finish carpentry on exposed and semi-exposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.7 PROTECTION

- A. Protect installed products from damage from weather and other causes during remainder of the construction period.
- B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.
 - 1. Indications that materials are wet, or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration. **END OF SECTION**

SECTION 064023

INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Wood casework and cabinets.
 - 2. Solid-surfacing-material countertops and backsplash
- B. Related Sections include the following:
 - 1. Section 06 10 00 – Rough Carpentry
 - 2. Section 06 20 00 – Finish Carpentry.
 - 3. Section 09 29 00 – Gypsum Board Assemblies.
- C. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product Data: For panel products, solid-surfacing material, cabinet hardware and accessories.
- C. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show details half full size.
 - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - 3. Show locations and sizes of cutouts and holes for items installed in architectural woodwork.
- D. Samples for Initial Selection:
 - 1. Shop-applied opaque finishes.
 - 2. Solid-surfacing materials.
- E. Samples for Verification:
 - 1. Lumber and panel products with shop-applied opaque finish, 50 sq. in. for lumber and 8 by 10 inches for panels, for each finish system and color, with 1/2 of exposed surface finished.

2. Solid-surfacing materials, 6 inches square.
 3. Corner pieces as follows:
 - a. Cabinet-front frame joints between stiles and rails, as well as exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
 - b. Miter joints for standing trim.
 4. Exposed cabinet hardware and accessories, one unit for each type and finish.
- F. Product Certificates: For each type of product, signed by product manufacturer.
- G. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- H. Qualification Data: For fabricator.

1.3 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: Fabricator of products.
- C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork.
- D. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
1. Provide AWI Quality Certification Program certificates indicating that woodwork, including installation, complies with requirements of grades specified.
 2. The Contract Documents may contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with such selections and requirements in addition to the quality standard.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- 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.

1.6 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior 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 Species for Opaque Finish: Any closed-grain hardwood.
- C. Wood Products: Comply with the following:
 - 1. Softwood Plywood: DOC PS 1, Medium Density Overlay.
 - 2. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1, made with adhesive containing no urea formaldehyde.
- D. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with ISSFA-2.
 - 1. Manufacturers:
 - a. E. I. du Pont de Nemours and Company.
 - b. Formica Corporation.
 - c. Nevamar Company, LLC; Decorative Products Div.
 - d. Wilsonart International; Div. of Premark International, Inc.
 - 2. Colors and Patterns: Wilsonart Solicor, Linen D427K-01, gloss finish (Basis of Design)

- E. Plastic Laminate
 - 1. Face Sheets: Basis of Design: Wilsonart SOLICOR "Linen" D427K-01, gloss white.
 - 2. Backing Sheets: Non-decorative, high-pressure plastic laminate, NEMA LD3, Grade BK20, 0.02" thick.
 - 3. Edges: Finish with plastic laminate to match face and applied before face sheets are applied, unless otherwise shown or specified.

2.2 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets.
- B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 100 degrees of opening.
- C. Back-Mounted Pulls: BHMA A156.9, B02011.
- D. Wire Pulls: Back mounted, solid metal, 5 inches long, 2-1/2 inches deep, and 5/16 inch in diameter.
- E. Catches: Heavy Duty Roller Catches, BHMA A156.9, B03071.
- F. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
 - 1. Satin Stainless Steel: BHMA 630.
- G. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.3 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- C. Adhesives, General: Do not use adhesives that contain urea formaldehyde.
- D. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Wood Glues: 30 g/L.
 - 2. Contact Adhesive: 250 g/L.

2.4 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Unless otherwise indicated, provide Premium-grade interior woodwork complying with referenced quality standard.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- D. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
 - 1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members and Rails: 1/8 inch.
- E. 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.
 - 1. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.
- F. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
 - 1. Seal edges of openings in countertops with a coat of varnish.

2.5 WOOD CABINETS FOR OPAQUE FINISH

- A. Grade: Premium.
- B. AWI Type of Cabinet Construction: Flush overlay.
- C. Species for Exposed Lumber Surfaces: Any closed-grain hardwood.
- D. Panel Product for Exposed Surfaces: Hardwood veneer veneer-core plywood.
- E. Semi exposed Surfaces: Provide surface materials indicated below:
 - 1. Surfaces Other Than Drawer Bodies: Match materials indicated for exposed surfaces.

2.6 SOLID-SURFACING-MATERIAL COUNTERTOPS AND BACKSPLASH

- A. Grade: Premium.
- B. Solid-Surfacing-Material Thickness: 1/2 inch.
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:
 - 1. Corian Solid Surface, Everest primarily white (Basis of Design)
- D. Fabricate tops in one piece, unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
 - 1. Fabricate tops with shop-applied edges of materials and configuration indicated.
 - 2. Fabricate tops with shop-applied backsplashes.

2.7 SHOP FINISHING

- A. Grade: Provide finishes of same grades as items to be finished.
- B. General: Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.
- C. General: Shop finish transparent-finished interior architectural woodwork at fabrication shop as specified in this Section. Refer to Division 09 painting Sections for finishing opaque-finished architectural woodwork.
- D. Shop Priming: Shop apply the prime coat including backpriming, if any, for items specified to be field finished. Refer to Division 09 painting Sections for material and application requirements.
- E. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
 - 1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative panels.
- F. Opaque Finish:
 - 1. Grade: Premium.
 - 2. AWI Finish System: Catalyzed lacquer.
 - 3. Color: As selected by Architect from manufacturer's full range.
 - 4. Sheen: Satin, 31-45 gloss units measured on 60-degree gloss meter per ASTM D 523.

2.8 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: Exposed surfaces – See 2.3 above. Cabinet interiors: as selected by architect.

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.

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 backpriming.**

3.2 INSTALLATION

- A. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.
- B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/16 inch in 96 inches.
- C. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- E. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/16 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head screws sized for 1-inch penetration into wood framing, blocking, or hanging strips.
- F. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
 - 2. Install countertops with no more than 1/16 inch in 96-inch sag, bow, or other variation from a straight line.
 - 3. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
 - 4. Calk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."
- G. Touch up finishing work specified in this Section after installation of woodwork. Fill nail 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; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

- B. Clean, lubricate, and adjust hardware.
- C. Clean woodwork on exposed and semi exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION

SECTION 078100

SPRAYED FIRE-RESISTIVE MATERIALS

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 sprayed fire-resistive materials as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:
 - 1. Spray-on fireproofing for structural steel and metal decking.
 - 2. Seal coat over fireproofing in special areas.
 - 3. Preparation of surfaces.
 - 4. Field quality control.

1.3 RELATED SECTIONS

- A. Penetration Firestopping – Section 078413.
- B. Statement of Special Inspections Form – Section 014113.

1.4 SUBMITTALS

- A. Product Data: For each fire-resistive product specified.
- B. Shop Drawings: Submit structural framing plans indicating the following:
 - 1. Locations and types of surface preparations required before applying sprayed fire-resistive material.
 - 2. Extent of sprayed fire-resistive material for each construction and fire-resistance rating, including the following:
 - a. Applicable fire-resistive design designations of a qualified testing and inspecting agency acceptable to authorities having jurisdiction.
 - b. Minimum thicknesses needed to achieve required fire-resistance ratings of structural components and assemblies.
 - 3. Identify restrained and unrestrained assemblies on shop drawings, show required thickness of fireproofing for each assembly.

- C. Product Certificates: Signed by manufacturer of sprayed fire-resistive material certifying that the products furnished comply with requirements.
- D. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- F. If primer is to be used steel and/or metal deck, submit certifications by supplier of primer that primer is compatible with materials, and will not impair the required performance of the installed fireproofing. Such certification shall be accompanied by evidence that the primer was successfully used in conjunction with the fireproofing material in a UL test applicable to the construction. Submit his certification prior to application of primer.
- G. Product Test Reports: Indicate that physical properties of proposed sprayed fire-resistive materials comply with specified requirements based on comprehensive testing of current product formulations by a qualified testing and inspecting agency according to requirements specified in "Quality Assurance" Article.
- H. Code Compliance: Proposed product must comply with prevailing Building Code and be approved by those individuals having jurisdiction.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer certified, licensed, or otherwise qualified by sprayed fire-resistive material manufacturer as having the necessary experience, staff, and training to install manufacturer's products according to specified requirements. A manufacturer's willingness to sell its sprayed fire-resistive materials to Contractor or to an installer engaged by Contractor does not in itself confer qualification on the buyer.
- B. Submit data indicating that products containing no detectable asbestos as determined according to the method specified in 40 CFR, Part 763, Subpart E, Appendix E, Section 1, "Polarized Light Microscopy."
- C. Mockups: After processing of initial submittals and before delivery and installation of fireproofing materials, prepare a sample installation of fireproofing work, approximately 100 sq. ft. in area; providing an example of each type required, applied on each different substrate, to produce each different rating as required and reasonably representative of entire sprayed on fireproofing work, for joint approval by representative of fire-resistant material manufacturer and Owner. Work in other areas shall not proceed until mock-up has been completed. Mock-up work which remains in compliance with requirements and is in undamaged and acceptable condition may be retained as final work in place.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to Project site in original, unopened packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; shelf life, if applicable; and fire-resistance ratings applicable to Project.
- B. Use materials with limited shelf life within period indicated. Remove from Project site and discard materials whose shelf life has expired.
- C. Store materials inside, under cover, aboveground, so they are kept dry until ready for use. Remove from Project site and discard materials that have deteriorated.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply sprayed fire-resistive material when ambient or substrate temperatures are 40 deg F. or lower, unless temporary protection and heat is provided to maintain temperatures at or above this level for 24 hours before, during, and for 24 hours after product application.
- B. Ventilation: Ventilate building spaces during and after application of sprayed fire-resistive material to achieve a minimum of four air changes per hour. Use natural means or, where this is inadequate, forced-air circulation until fire-resistive material dries thoroughly.

1.8 SEQUENCING

- A. Sequence and coordinate application of sprayed fire-resistive materials with other related work specified in other Sections to comply with the following requirements:
 - 1. Provide temporary enclosures for interior applications to prevent deterioration of fire-resistive material due to exposure to unfavorable environmental conditions.
 - 2. Avoid unnecessary exposure of fire-resistive material to abrasion and other damage likely to occur during construction operations subsequent to its application.
 - 3. Do not apply fire-resistive material to metal roof deck substrates until roofing has been completed; prohibit roof traffic during application and drying of fire-resistive material. Fireproofing shall be considered dry when the moisture content is 6% or less.
 - 4. Do not begin applying fire-resistive material until clips, hangers, supports, sleeves, and other items penetrating fire protection are in place.
 - 5. Defer installing ducts, piping, and other items that would interfere with applying fire-resistive material until application of fire protection is completed.
 - 6. Do not install enclosing or concealing construction until after fire-resistive material has been applied, inspected, tested, and corrections have been made to defective applications.
 - 7. Protect permanently exposed walls, floor or special surfaces.

1.9 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty: Submit a written warranty, executed by Contractor and cosigned by Installer, agreeing to repair or replace sprayed fire-resistive materials that fail within the specified warranty period.
 - 1. Failures include, but are not limited to, cracking, flaking, eroding in excess of specified requirements; peeling; and delaminating of sprayed fire-resistive materials from substrates due to defective materials and workmanship within the specified warranty period.
 - 2. Not covered under the warranty are failures due to damage by occupants and Owner's maintenance personnel, exposure to environmental conditions other than those investigated and approved during fire-response testing, and other causes not reasonably foreseeable under conditions of normal use.

- C. Warranty Period: Three (3) years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 CONCEALED SPRAYED FIRE-RESISTIVE MATERIALS (FOR BUILDINGS UNDER 75' HIGH ONLY)

- A. General: For concealed applications of sprayed fire-resistive materials, provide manufacturer's standard products complying with requirements indicated in this Article for material composition and physical properties representative of installed products.
- B. Material Composition: As follows:
1. Cementitious sprayed fire-resistive material consisting of factory-mixed, dry formulation of gypsum or Portland cement binders and lightweight mineral or synthetic aggregates mixed with water at Project site to form a slurry or mortar for conveyance and application.
- C. Physical Properties: Minimum values, unless otherwise indicated, or higher values required to attain designated fire-resistance ratings, measured per standard test methods referenced with each property listed as follows:
1. Dry Density: Minimum 15 lb./cu. ft. for average and individual densities regardless of density indicated in referenced fire-resistive design, or greater if required to attain fire-resistance ratings indicated, per ASTM E 605 or AWCI Technical Manual 12-A, Appendix A, "Alternate Method for Density Determination."
 2. Thickness: Provide minimum average thickness required for fire-resistive design shown on approved submittals.
 - a. Fireproofing shall be of thicknesses and density to meet the requirements of the New York State City Building Code
 3. Bond Strength: Not less than 200 lbf/sq. ft. per ASTM E 736.
 4. Compressive Strength: 5.21 lbf/sq. in. as determined in the laboratory per ASTM E 761. Minimum thickness of sprayed fire-resistive material tested shall be 0.75 inch and minimum dry density shall be as specified, but not less than 15 lb./cu. ft.
 5. Corrosion Resistance: No evidence of corrosion per ASTM E 937.
 6. Deflection: No cracking, spalling, delamination, or the like per ASTM E 759.
 7. Effect of Impact on Bonding: No cracking, spalling, delamination, or the like per ASTM E 760.
 8. Air Erosion: Maximum weight loss of 0.025 g/sq. ft. in 24 hours per ASTM E 859. For laboratory tests, minimum thickness of sprayed fire-resistive material is 0.75 inch, maximum dry density is 15 lb./cu. Ft., test specimens are not prepurged by mechanically induced air velocities, and tests are terminated after 24 hours.
 9. Fire-Test-Response Characteristics: Provide sprayed fire-resistive materials with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

- a. Flame Spread: 10 or less.
 - b. Smoke Developed: 0.
10. Fungal Resistance: No observed growth on specimens per ASTM G 21.
- D. Products: Subject to compliance with requirements, provide products by one of the following:
- 1. Cementitious Sprayed Fire-Resistive Material
 - a. Pyrolite 5GP; Carbolite Co., Fireproofing Products Div.
 - b. Monokote Type MK-6; W.R. Grace & Co. - Conn., Construction Products Div.
 - c. Cafco 300; Isolatek International Corp., Cafco Products.
 - d. Type F3; Promat Firetemp.
- 2.2 SPRAYED FIRE-RESISTIVE MATERIALS FOR EXPOSED FIREPROOFING FOR ALL FIREPROOFING IN BUILDINGS 75' HIGH OR HIGHER
- A. General: For exposed applications of sprayed fire-resistive materials, provide manufacturer's standard products complying with requirements indicated for material composition and for minimum physical properties of each product listed, measured by standard test methods referenced with each property.
 - B. Cementitious Sprayed Fire-Resistive Material: Factory-mixed, dry, cement aggregate formulation, chloride-free formulation of Portland cement binders, additives, and inorganic aggregates, mixed with water at Project site to form a slurry or mortar for conveyance and application, complying with the following requirements:
 - 1. Dry Density: Values for average and individual densities as required for fire-resistance ratings indicated, per ASTM E 605 or AWCI Technical Manual 12-A, Appendix A, "Alternate Method for Density Determination," but with an average density of not less than 22 lb./cu. ft.
 - 2. Bond Strength: 425 psf minimum per ASTM E 736.
 - 3. Compressive Strength: 10,000 psf. per ASTM E 761.
 - 4. Corrosion Resistance: No evidence of corrosion per ASTM E 937.
 - 5. Deflection: No cracking, spalling, delamination, or the like per ASTM E 759.
 - 6. Effect of Impact on Bonding: No cracking, spalling, delamination, or the like per ASTM E 760.
 - 7. Air Erosion: Maximum weight loss of 0.025 g/sq. ft. per ASTM E 859.
 - 8. Combustion Characteristics: Passes ASTM E 136.
 - 9. Fire-Test-Response Characteristics: Provide sprayed fire-resistive materials with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - a. Flame Spread: 10 or less.
 - b. Smoke Developed: 0.

10. Fungal Resistance: No observed growth on specimens per ASTM G 21.
 11. For exterior applications of sprayed fire-resistive material, provide manufacturer's formulation approved for surfaces exposed to the exterior.
- C. Products: Subject to compliance with requirements, provide one of the following:
1. Cement-Aggregate Cementitious Sprayed Fire-Resistive Material:
 - a. Pyrocrete 239; Carbolite Co., Fireproofing Products Div.
 - b. Monokote Type Z106HY; W.R. Grace & Co.--Conn., Construction Products Div.
 - c. F4; Promat Firetemp.
 - d. Cafco 400, Isolatek International Corp; Cafco Products.

2.3 AUXILIARY FIRE-RESISTIVE MATERIALS

- A. General: Provide auxiliary fire-resistive materials that are compatible with sprayed fire-resistive materials and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in fire-resistive designs indicated.
- B. Adhesive for Bonding Fire-Resistive Material: Product approved by manufacturer of sprayed fire-resistive material, used where required by manufacturer to insure proper bond.
- C. Metal Lath: Expanded metal lath fabricated from material of weight, configuration, and finish required to comply with fire-resistive designs indicated and fire-resistive product manufacturer's written recommendations. Include clips, lathing accessories, corner beads, and other anchorage devices required to attach lath to substrates and to receive sprayed fire-resistive material.
- D. Sealer for Sprayed Fire-Resistive Material in Elevator Shafts: Transparent-drying, water-dispersible protective coating by manufacturer of fire-resistive material.
1. Product: Subject to compliance with requirements, provide "Firebond Concentrate" by W.R. Grace, or similar product recommended by the manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, to determine whether they are in satisfactory condition to receive sprayed fire-resistive material. A substrate is in satisfactory condition if it complies with the following:
1. Substrates are free of oil, grease, rolling compounds, incompatible primers, loose mill scale, dirt, or other foreign substances capable of impairing bond of fire-resistive material with substrate under conditions of normal use or fire exposure.
 2. Objects penetrating fire-resistive material, including clips, hangers, support sleeves, and similar items, are securely attached to substrates.
 3. Substrates are not obstructed by ducts, piping, equipment, and other suspended construction that will interfere with applying fire-resistive material.

- B. Do not proceed with installation of fire-resistive material until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of substances that could impair bond of fire-resistive material, including oil, grease, rolling compounds, incompatible primers, and loose mill scale.
- B. For exposed applications, repair substrates to remove any surface imperfections that could affect uniformity of texture and thickness in finished surface of sprayed fire-resistive material. Remove minor projections and fill voids that would telegraph through fire-resistive products after application.
- C. Cover other work subject to damage from fallout or overspray of fire-resistive materials during application. Provide temporary enclosure as required to confine spraying operations, protect the environment, and ensure maintenance of adequate ambient conditions for temperature and ventilation.

3.3 INSTALLATION

- A. Comply with fire-resistive material manufacturer's written instructions for mixing materials, application procedures, and types of equipment used to convey and spray on fire-resistive material, as applicable to particular conditions of installation and as required to achieve fire-resistance ratings indicated.
- B. Install metal lath, as required, to comply with fire-resistance ratings and fire-resistive material manufacturer's written recommendations for conditions of exposure and intended use. Securely attach lath to substrate in position required for support and reinforcement of fire-resistive material. Use anchorage devices of type recommended in writing by fire-resistive material manufacturer. Attach lathing accessories where indicated or required for secure attachment to substrate.
- C. Coat substrates with adhesive before applying fire-resistive material where required to achieve fire-resistance rating or as recommended in writing by fire-resistive material manufacturer for material and application indicated.
- D. Extend fire-resistive material in full thickness over entire area of each substrate to be protected.
- E. Spray apply fire-resistive materials to maximum extent possible. Following the spraying operation in each area, complete the coverage by method recommended by the manufacturer.
- F. Where sealers are used, apply products that are tinted to differentiate them from the sprayed fire-resistive material over which they are applied.
- G. Maintain ambient conditions during installation and for cure period following installation, as recommended by manufacturer. Provide ventilation and avoid excessive rate of drying.
- H. Fireproofing to the underside of roof deck assemblies shall be done only after roofing application is complete, all roof mounted mechanical equipment is in place, and the roof is watertight.
- I. No fireproofing shall be applied prior to completion of concrete work on steel decking.
- J. Installation Sequence of Fireproofing
 - 1. All patching and repairing of sprayed fireproofing, due to cutting by other trades or testing and inspection, shall be performed under this Section.

- K. Provisions shall be made for ventilation to properly dry the fireproofing after application. In enclosed areas lacking natural ventilation, air circulation and ventilation must be provided.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.
 - 1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.
- B. Testing and inspecting of completed applications of sprayed fire-resistive material will take place in successive stages, in areas of extent and using methods as follows. Do not proceed with application of fire-resistive material for the next area until test results for previously completed applications of fire-resistive material show compliance with requirements.
 - 1. For each 1000-sq. ft. area, or partial area, on each floor, testing and inspecting agency will evaluate the following characteristics. Tested values must equal or exceed values indicated and values required for approved fire-resistance design.
 - a. Thickness for Floors, Roofs, and Walls: From the average of 10 measurements from a 144-sq. in. sample area, with sample width of not less than 6 inches per ASTM E 605.
 - 2. Thickness for Structural Frame Members: From a sample of 25 percent of structural members per floor, taking 9 measurements at a single cross section for structural frame beams or girders, 7 measurements of a single cross section for joists and trusses, and 12 measurements of a single cross section for columns per ASTM E 605.
 - 3. For each 10,000 sq. ft. area, or partial area, on each floor, testing and inspection agency will evaluate the following characteristics. Tested values must equal or exceed values indicated and values required for approved fire resistance design.
 - a. Bond Strength for Floors, Roofs, Walls, and Structural Framing Members: Cohesion and adhesion at frequency and from sample size indicated for determining thickness of each type of construction, per ASTM E 736.
 - 4. Density for Floors, Roofs, Walls, and Structural Frame Members: At frequency and from sample size indicated for determining thickness of each type of construction, per ASTM E 605 or AWCI Technical Manual 12-A, Appendix A, "Alternate Method for Density Determination."
 - 5. When testing discovers applications of fire-resistive material not in compliance with requirements, testing and inspecting agency will perform additional random testing to determine extent of noncompliance.
- C. Remove and replace applications of fire-resistive material where test results indicate that they do not comply with specified requirements for cohesion and adhesion or for density, or both.
- D. Apply additional fire-resistive material per manufacturer's written instructions where test results indicate that thickness does not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.5 CLEANING, PROTECTING, AND REPAIR

- A. Cleaning: Immediately after completing spraying operations in each containable area of Project, remove material overspray and fallout from surfaces of other construction and clean exposed surfaces to remove evidence of soiling.
- B. Cure exposed sprayed fire-resistive material according to product manufacturer's written recommendations to prevent premature drying.
- C. Protect fire-resistive material, according to advice of product manufacturer and Installer, from damage resulting from construction operations or other causes so fire protection will be without damage or deterioration at the time of Substantial Completion.
- D. Coordinate application of fire-resistive material with other construction to minimize the need to cut or remove fire protection. As installation of other construction proceeds, inspect fire-resistive material and patch any damaged or removed areas.
 - 1. Patch and repair fireproofing where Owner's Testing Agency has performed tests.
- E. Repair or replace work that has not been successfully protected.

END OF SECTION

SECTION 078413

PENETRATION FIRESTOPPING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

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 walls and the outer perimeter edge of floor assemblies.

B. Related sections

1. Cast-in-place concrete – DIVISION 3.
2. Joint sealers - Section 079200.
3. Gypsum Assemblies - Section 092900.
4. Piping penetrations – DIVISION 22.
5. Duct penetrations – DIVISION 23.
6. Cable and conduit penetrations – DIVISION 26.
7. Statement of Special Inspections Form – Section 014113.

1.2 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 119 "Standard Method of Fire Tests of Building Construction and Materials."
- D. UL 263, UBC 7-1 (Both are same as C. above).
- 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. 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.
- I. Material must have approval for use in New York State.

1.3 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. Manufacturer's Letters: For installations or configurations not covered by a UL or Warnock Hersey design number, a recommendation shall be obtained from the manufacturer, in writing, for the specific application.

1.4 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. 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.
- C. Firestopping products shall be asbestos free and free of any PCBs.
- D. Do not use any product containing solvents or that requires hazardous waste disposal.
- E. Do not use firestop products which after curing, dissolve in water.
- F. Do not use firestop products that contain ceramic fibers.
- G. 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.
- H. 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.
- I. 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.

1.5 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.

1.6 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.

1.7 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. Top coat after approval.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide products of one of the following manufacturers:
 - 1. Tremco
 - 2. Bio-Fireshield
 - 3. 3M
 - 4. Specified Technologies Inc.
 - 5. U.S. Gypsum Co.
 - 6. Nelson
 - 7. Hilti, Inc.
 - 8. Grace Flame Safe

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.
- 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. Silicone Foam: Two-component, silicone-based liquid elastomer that, when mixed, expands and cures in place to produce a flexible, non-shrinking foam.
- I. 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.

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 Thermafiber as manufactured by Thermafiber Co., min. 4 pcf FBX Safing Insulation as manufactured by Fibrex, or approved equal to suit conditions and to comply with fire resistance and firestop manufacturer's requirements.
- B. Material shall be classified non-combustible per ASTM E 119.

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 opening, 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

SECTION 079200

JOINT SEALANTS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Flashing reglets and retainers.
2. Exterior wall joints not specified to be sealed in other Sections of work.
3. 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.
4. Acoustic sealant at glazed wall partitions.
5. Sealing countertops or casework.
6. Control and expansion joints in walls.
7. Joints at wall penetrations.
8. Joints between items of equipment and other construction.
9. All other joints required to be sealed to provide a positive barrier against penetration of air and moisture.

B. Related sections:

1. Firestop sealants – Section 07 84 13.
2. Glazing sealants - Section 08 80 00.
3. Sealant within drywall construction - Section 09 29 00.

1.2 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.

1.3 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.

1.4 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.

1.5 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.

1.6 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.
- 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.

1.7 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., "Spectrem 1" or "Spectrem 3" made by Tremco, "Sonolastic 150" made by Sonneborn, or "Sikasil WS-295" or "Sikasil WS-290" made by Sika conforming to the minimum standards of ASTM C 920, Type S, Grade NS, Class 50.
- 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: Colors selected from manufacturer's standard selection.

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.

END OF SECTION

SECTION 081113

HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Interior hollow metal doors and frames in unrated door openings.
2. Preparation of metal doors and frames to receive finish hardware, including reinforcements, drilling and tapping necessary.
3. Furnishing anchors for building into masonry and drywall.

B. Related sections:

1. Installation of doors and frames - Section 062000.
2. Finish hardware - Section 087100.
3. Glass and glazing - Section 088000.
4. Gypsum drywall – Section 092900.
5. Painting - Section 099000.

1.2 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, core descriptions, label compliance, compliance with standards referenced herein, sound and fire-resistance ratings, and finishes for each type of door and frame specified.
- B. Shop Drawings: Show fabrication and installation of doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, reinforcement for surface applied hardware, dimensions of profiles and hardware preparation, location and installation requirements of door and frame hardware and reinforcements, and details of joints and connections. Show anchorage and accessories.
- C. Door Schedule: Submit schedule of doors and frames using same reference numbers for details and openings as those on Drawings.
 1. Coordinate glazing frames and stops with glass and glazing requirements.
- D. Oversize Construction Certification: For door assemblies required to be fire rated and exceeding limitations of labeled assemblies, submit certification of a testing agency acceptable to authorities having jurisdiction that each door and frame assembly has been constructed to comply with design, materials, and construction equivalent to requirements for labeled construction.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing custom steel doors and frames 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.
- B. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.
- C. Source Limitations: Obtain custom steel doors and frames through one source from a single manufacturer.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames palletted, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.
- B. Inspect doors and frames, on delivery, for damage. Minor damage may be repaired provided refinished items match new work and are approved by Architect; otherwise, remove and replace damaged items as directed.
- C. Store doors and frames under cover at building site. Conform to the requirements of ANSI A 250-11-2001 for site storage unless more stringent requirements are noted herein. Place units on minimum 4-inch high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber. If wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch spaces between stacked doors to permit air circulation.

PART 2 PRODUCTS

2.1 FABRICATION - GENERAL

- A. Fabricate hollow metal units to be rigid, neat in appearance and free from defects, warp or buckle. Accurately form metal to required sizes and profiles. Weld exposed joints continuously, grind, dress, and make smooth, flush and invisible. Metallic filler to conceal manufacturing defects is not acceptable.
- B. Unless otherwise indicated, provide countersunk flat Phillips or Jackson heads for exposed screws and bolts.
- C. Prepare hollow metal units to receive finish hardware, including cutouts, reinforcing, drilling and tapping in accordance with Finish Hardware Schedule and templates provided by hardware suppliers. Comply with applicable requirements of ANSI A115 "Specifications for Door and Frame Preparation for Hardware."
- D. Locate finish hardware as shown on final shop drawings in accordance with locations noted herein.

2.2 MANUFACTURERS

- A. Provide products manufactured by Steelcraft, Curries, Ceco Door Products, or approved equal meeting these specifications.

2.3 FRAMES

A. Materials

1. Frames for interior openings shall be either commercial grade cold-rolled steel conforming to ASTM A 1008/A, Type B or commercial grade hot-rolled steel conforming to ASTM A 1011/A, Commercial Steel, Type B. Metal thickness shall be not less than sixteen (16) ga. for frames in openings 4'-0" or less in width; not less than fourteen (14) ga. for frames in openings over 4'-0" in width.

B. Design and Construction

1. All frames shall be welded units with integral trim, of the sizes and shapes shown on approved shop drawings. Knocked down frames are not permitted.
2. All finished work shall be strong and rigid, neat in appearance, square, true and free of defects, warp or buckle. Molded members shall be clean cut, straight and of uniform profile throughout their lengths.
3. Jamb depths, trim, profile and backbends shall be as shown on drawings.
 - a. Frames at drywall partitions shall be formed with double return backbends to prevent cutting into drywall surface.
4. Welded frames shall have corners mitered and reinforced and faces of welded frames shall be continuously back welded full depth and width of frame conforming to NAAMM Standard HMMA-820; face joints shall be hairline.
5. Minimum depth of stops shall be 5/8".
6. Frames for multiple or special openings shall have mullion and/or rail members which are closed tubular shapes having no visible seams or joints. All joints between faces of abutting members shall be securely welded and finished smooth.
 - a. Mullions shall have 16 ga. internal steel stiffeners welded not less than 4" o.c.
7. Hardware Reinforcements
 - a. Frames shall be mortised, reinforced, drilled and tapped at the factory for fully templated mortised hardware only, in accordance with approved hardware schedule and templates provided by the hardware supplier. Where surface-mounted hardware is to be applied, frames shall have reinforcing plates.
 - b. Minimum thickness of hardware reinforcing plates shall be as follows:
 - 1). Hinge and pivot reinforcements - seven (7) ga., 1-1/4" x 10" minimum size.
 - 2). Strike reinforcements - twelve (12) gauge
 - 3). Flush bolt reinforcements - twelve (12) gauge
 - 4). Closer reinforcements - twelve (12) gauge
 - 5). Reinforcements for surface mounted hardware - twelve (12) gauge.
8. Floor Anchors

- a. Provide adjustable floor anchors, providing not less than two (2) inch height adjustment.
 - b. Minimum thickness of floor anchors shall be fourteen (14) gauge.
9. Jamb Anchors
- a. Frames for installation in masonry walls shall be provided with adjustable jamb anchors of the wire type. Anchors shall be not less than 0.156" diameter steel wire. The number of anchors provided on each jamb shall be as follows:
 - 1). Frames up to 7'-6" height - three (3) anchors.
 - 2). Frames 7'-6" to 8'-0" height - four (4) anchors.
 - 3). Frames over 8'-0" height - one (1) anchor for each 2'-0" or fraction thereof in height.
 - b. Frames for installation in stud partitions shall be provided with steel anchors of suitable design, not less than eighteen (18) gauge thickness, securely welded inside each jamb as follows:
 - 1). Frames up to 7'-6" height - four (4) anchors.
 - 2). Frames 7'-6" to 8'-0" height - five (5) anchors.
 - 3). Frames over 8'-0" height - five (5) anchors plus one additional for each 2'-0" or fraction thereof over 8'-0".
 - c. Frames to be anchored to previously placed concrete or masonry shall be provided with minimum 3/8" concealed bolts set into expansion shields or inserts at six (6) inches from top and bottom and twenty-four (24) inches o.c. Reinforce frames at anchor locations with sixteen (16) gauge sheet steel stiffeners welded to frame at each anchor.
10. Anchors in exterior frames and in masonry walls shall be hot dip galvanized per ASTM A 153.
11. Frames for installation in masonry wall openings more than 4'-0" in width shall have an angle or channel stiffener factory welded into the head. Such stiffeners shall be not less than twelve (12) gauge steel and not longer than the opening width and shall not be used as lintels or load bearing members.
12. Dust cover boxes (or mortar guards) of not thinner than twenty-six (26) gauge steel shall be provided at all hardware mortises on frames to be set in masonry or plaster partitions.
13. Ceiling Struts: Minimum 3/8" thick x 2" wide steel.
14. All frames shall be provided with a steel spreader temporarily attached to the feet of both jambs to serve as a brace during shipping and handling.
15. Loose glazing stops shall be of cold rolled steel, not less than twenty (20) gauge thickness, butted at corner joints and secured to the frame with countersunk cadmium-or zinc-plated screws. Interior frames may be provided with snap-on glazing stops.
16. Except on weatherstripped frames, drill stops to receive three (3) silencers on strike jambs of single door frames and two (2) silencers on heads of double-door frames.

- C. Finish: After fabrication, all tool marks and surface imperfections shall be removed, and exposed faces of all welded joints shall be dressed smooth. Frames shall then be chemically treated to ensure maximum paint adhesion and shall be coated on all surfaces with one coat of rust-inhibitive baked-on alkyd primer standard with the manufacturer which is fully cured before shipment to a dry film thickness of 2.0 mils.

1. Frames set in masonry walls shall be grouted in as described in Section 042000 – Unit Masonry. These frames shall have surfaces in contact with grout shop coated with epoxy coating equal to Series 27 FC Typoxy made by Tnemec or approved equal spray applied at 4 to 6 mils, passing NFPA 101, Class A for smoke and flame spread, tested per ASTM E 84.

2.4 HOLLOW METAL DOORS

- A. Materials: Doors shall be made of commercial quality, level, cold rolled steel conforming to ASTM A 1008/A, Commercial Steel, Type B and free of scale, pitting or other surface defects. Face sheets for interior doors shall be not less than eighteen (18) gauge. Face sheets for exterior doors shall be not less than sixteen (16) gauge and shall have a hot dipped galvanized coating conforming to ASTM A 924 and A 653, A-60 coating. The zinc alloy coating shall be a dull matte surface treated for paint adhesion.

B. Design and Construction

1. All doors shall be of the types and sizes shown on the approved shop drawings and shall be fully welded seamless construction with no visible seams or joints on their faces or vertical edges. Minimum door thickness shall be 1-3/4".
2. All doors shall be strong, rigid and neat in appearance, free from warpage or buckles. Corner bends shall be true and straight and of minimum radius for the gauge of metal used.
3. Face sheets shall be stiffened by continuous vertical formed steel sections spanning the full thickness of the interior space between door faces. These stiffeners shall be not less than twenty-two (22) gauge spaced not more than six (6) inches apart and securely attached to face sheets by spot welds not more than five (5) inches o.c. Spaces between stiffeners shall be sound deadened and thermal insulated the full height of the door with an inorganic non-combustible batt type material.
4. Door faces shall be joined at their vertical edges by a continuous weld extending the full height of the door. All such welds shall be ground, filled and dressed smooth to make them invisible and provide a smooth flush surface.
5. Top and bottom edges of all doors shall be closed with a continuous recessed steel channel not less than fourteen (14) gauge, extending the full width of the door and spot welded to both faces. Exterior doors shall have an additional flush closing channel at their top edges and, where required for attachment of weatherstripping, a flush closure also at their bottom edges. Openings shall be provided in the bottom closure of exterior doors to permit the escape of entrapped moisture.
6. Edge profiles shall be provided on both vertical edges of doors as follows:
 - a. Single-acting swing doors - beveled 1/8" in two (2) inches.
 - b. Double acting swing doors - rounded on 2-1/8" radius.
 - c. No square edge doors permitted.

7. Hardware Reinforcements

- a. Doors shall be mortised, reinforced, drilled and tapped at the factory for fully templated hardware only in accord with the approved hardware schedule and templates provided by the hardware supplier. Where surface-mounted hardware (or hardware, the interrelation of which is to be adjusted upon installation - such as top and bottom pivots, floor closers, etc.) is to be applied, doors shall have reinforcing plates.
- b. Minimum gauges for hardware reinforcing plates shall be as follows:
 - 1). Hinge and pivot reinforcement - seven (7) gauge.
 - 2). Reinforcement for lock face, flush bolts, concealed holders, concealed or surface mounted closers - twelve (12) gauge.
 - 3). Reinforcements for all other surface mounted hardware - sixteen (16) gauge.

8. Glass Moldings and Stops

- a. Where specified or scheduled, doors shall be provided with hollow metal moldings to secure glazing by others in accordance with glass opening sizes shown on drawings.
- b. Fixed moldings shall be securely welded to the door on the security side.
- c. Loose stops shall be not less than twenty (20) gauge steel, with mitered corner joints, secured to the framed opening by cadmium or zinc-coated countersunk screws spaced eight (8) inches o.c. Snap-on attachments will not be permitted. Stops shall be flush with face of door.

C. Finish: After fabrication, all tool marks and surface imperfections shall be dressed, filled and sanded as required to make all faces and vertical edges smooth, level and free of all irregularities. Doors shall then be chemically treated to insure maximum paint adhesion and shall be coated, on all exposed surfaces, with manufacturer's standard rust-inhibitive alkyd primer as specified for frames which shall be fully cured before shipment.

D. Flatness: Doors shall maintain a flatness tolerance of 1/16" maximum, in any direction, including in a diagonal direction.

2.5 LABELED DOORS AND FRAMES

- A. Labeled doors and frames shall be provided for those openings requiring fire protection ratings as scheduled on drawings. Such doors and frames shall be labeled by Underwriters' Laboratories or other nationally recognized agency having a factory inspection service.
- B. If any door or frame specified by the Architect to be fire-rated cannot qualify for appropriate labeling because of its design, size, hardware or any other reason, the Architect shall be so advised before fabricating work on that item is started.

2.6 HARDWARE LOCATIONS

- A. The location of hardware on doors and frames shall be as noted in "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames" of the Door Hardware Institute unless otherwise required by prevailing Handicap Codes.

2.7 CLEARANCES

A. Fabricate doors and frames to meet edge clearances as follows:

1. Jambs and Head: 1/8" plus or minus 1/16".
2. Meeting Edges, Pairs of Doors: 1/8" Plus or minus 1/16".
3. Bottom: 3/4", if no threshold.
4. Bottom: 3/8", at threshold.

B. Fire rated doors shall have clearances as required by NFPA 80.

2.8 MANUFACTURING TOLERANCES

A. Manufacturing tolerance shall be maintained within the limits given in HMMA 841 of ANSI/NAAMM, current edition.

2.9 PREPARATION FOR FINISH HARDWARE

A. Prepare door and frames to receive hardware:

1. Hardware supplier shall furnish hollow metal manufacturer approved hardware schedule, hardware templates, and samples of physical hardware where necessary to insure correct fitting and installation.
2. Preparation includes sinkages and cut-outs for mortise and concealed hardware.

B. Provide reinforcements for both concealed and surface applied hardware:

1. Drill and tap mortise reinforcements at factory, using templates.
2. Install reinforcements with concealed connections designed to develop full strength of reinforcements.

2.10 REJECTION

A. Hollow metal frames or doors which are defective, have hardware cutouts of improper size or location, or which prevent proper installation of doors, hardware or work of other trades, shall be removed and replaced with new at no cost.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where steel doors and frames 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. Refer to Section 062000 for installation procedures for all work of this Section.

END OF SECTION

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.

1.3 RELATED SECTIONS

- A. Installation of wood doors - Section 062000.
- B. Hollow metal frames - Section 081113.
- C. Finish hardware - Section 087100.
- D. Glass and glazing – Section 088000.
- E. Field painting – Section 099000.

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.

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 FIRE RATED WOOD VENEER SOLID CORE FLUSH DOORS

- A. Provide AWI PC-5 Premium Grade hot pressed 5-ply solid core fire resistant mineral core doors, 1-3/4" thick, conforming to standards specified herein. Veneer: **White Oak hardwood face, Grade A veneer, rift cut.** Subject to meeting standards specified herein, the following manufacturers are acceptable: Marshfield Door Systems, Inc., Algoma Hardwoods Inc., or Eggers Hardwood Products Corp.
 - 1. 60-minute solid mineral core
 - 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. 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.
- F. 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.
- G. 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.

2.2 SHOP FINISH

- A. Clear transparent finish, UV-cured acrylated polyester/urethane, Satin sheen.

2.3 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.
- 2.4 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

SECTION 083100

VAULT ACCESS DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide factory-fabricated vault access doors.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data.
- B. Shop Drawings: Submit shop drawings including profiles, accessories, location, adjacent construction interface, and dimensions.
- C. Warranty: Submit executed copy of manufacturer's standard warranty.

1.3 QUALITY ASSURANCE

- A. Manufacturer: A minimum of 5 years experience manufacturing similar products.
- B. Installer: A minimum of 2 years experience installing similar products.
- C. Manufacturer's Quality System: Registered to ISO 9001 Quality Standards including in-house engineering for product design activities.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in manufacturer's original packaging. Store materials in a dry, protected, well-vented area. Inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier's freight bill of lading.

1.5 WARRANTY

- A. Manufacturer's Warranty: Provide manufacturer's standard warranty. Materials shall be free of defects in material and workmanship for a period of five years from the date of purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis-of-Design Manufacturer: Type T Floor Access Door by The BILCO Company, or approved equal.

2.2 VAULT ACCESS DOOR

- A. Furnish and install where indicated on plans vault access door Type T, 36" width x 36" length. The floor access door shall be single leaf and pre-assembled from the manufacturer.
- B. Performance characteristics:
1. Cover: Shall be reinforced to support a minimum live load of 150 psf (732 kg/m²) with a maximum deflection of 1/150th of the span.
 2. Operation of the cover shall be smooth and easy with controlled operation throughout the entire arc of opening and closing. Operation of the cover shall not be affected by temperature.
- C. Cover: Shall be ¼" (6mm) aluminum smooth pattern plate with extruded aluminum molding 1/8" (3mm) in height fastened to the cover to receive carpet tile floor covering.
- D. Frame: Frame shall be extruded aluminum with strap anchors bolted to the exterior.
- E. Hinges: Shall be specifically designed for horizontal and shall be bolted to the underside of cover.
- F. Lifting mechanisms: Cam-action hinges shall pivot on torsion bars to provide, smooth, easy, and controlled cover operation throughout the entire arc of opening and to act as a check in retarding downward motion of the cover when closing.
- G. A removable exterior turn/lift handle with a spring-loaded ball detent shall be provided to open the cover.
- H. Hardware:
1. Hinges: Cast steel cam-action hinges which pivot on torsion bars shall be provided.
 2. Cover shall be equipped with a steel hold open arm that automatically locks the cover in the open position.
 3. Cover shall be fitted with the required number and size of torsion bars.
 4. A Type 316 stainless steel snap lock with fixed handle shall be mounted on the underside of the cover.
 5. Hardware: shall be zinc plated and chromate sealed. Type 316 stainless steel hardware is available for installation in corrosive environments.
- I. Finishes: Factory finish shall be mill finish aluminum with bituminous coating applied to the exterior of the frame.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and openings for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install products in strict accordance with manufacturer's instructions and approved submittals. Locate units level, plumb, and in proper alignment with adjacent work.
 - 1. Test units for proper function and adjust until proper operation is achieved.
 - 2. Repair finishes damaged during installation.
 - 3. Restore finishes so no evidence remains of corrective work.

3.3 ADJUSTING AND CLEANING

- A. Clean exposed surfaces using methods acceptable to the manufacturer which will not damage finish.

END OF SECTION

SECTION 083113

ACCESS DOORS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Framed flush panel access doors at masonry, drywall and tile walls.
2. 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 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.

B. Related sections:

1. Gypsum Board Assemblies - Section 092900.
2. Valves and connections - Division 23.

1.2 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.

1.3 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.

1.4 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.

PART 2 PRODUCTS

2.1 MATERIALS AND FABRICATION

- A. Provide access door assembly manufactured by Milcor Inc, or equal made by 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)
 - 1. Fabricate frame from sixteen (16) gauge steel. Provide frame with exposed flange not less than one (1) inch wide around perimeter of frame for the following construction:
 - a. Exposed masonry.
 - b. Tile finish.
 - 2. For installation in masonry construction, provide frames with adjustable metal masonry anchors.
- D. Frameless Units for Drywall Surfaces (Recessed Panel Units): Provide access doors without exposed frames for drywall adhered to recessed panel.
- E. 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.
- F. 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 1.04, B. herein.
- G. 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.

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 insure 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 087100

DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware for:
 - a. Swinging doors.
 - b. Sliding doors.
2. Electronic access control system components

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 Section "Alternates" for alternates affecting this section.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
 - a. "Metal Doors and Frames"
 - b. "Flush Wood Doors"
 - c. "Stile and Rail Wood Doors"
 - d. "Interior Aluminum Doors and Frames"
 - e. "Aluminum-Framed Entrances and Storefronts"
 - f. "Stainless Steel Doors and Frames"
 - g. "Special Function Doors"
 - h. "Entrances"
6. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
7. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
8. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.02 REFERENCES

A. UL - Underwriters Laboratories

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
 - a. Comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.
 - b. Review drawings and Sections from related trades to verify compatibility with specified hardware.
 - c. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.

2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
 - a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.
3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
 - a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
4. Door Hardware Schedule:
 - a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
 - b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
 - c. Indicate complete designations of each item required for each opening, include:
 - 1) Door Index: door number, heading number, and Architect's hardware set number.
 - 2) Quantity, type, style, function, size, and finish of each hardware item.
 - 3) Name and manufacturer of each item.
 - 4) Fastenings and other pertinent information.
 - 5) Location of each hardware set cross-referenced to indications on Drawings.
 - 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
 - 7) Mounting locations for hardware.
 - 8) Door and frame sizes and materials.
 - 9) Degree of door swing and handing.
 - 10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.
5. Key Schedule:
 - a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
 - b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
 - c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
 - d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.

- e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
 - f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.
 - 6. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory or shop prepared for door hardware installation.
- C. Informational Submittals:
- 1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
 - 2. Provide Product Data:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
 - b. Include warranties for specified door hardware.
- D. Closeout Submittals:
- 1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
 - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Factory order acknowledgement numbers (for warranty and service)
 - d. Name, address, and phone number of local representative for each manufacturer.
 - e. Parts list for each product.
 - f. Final approved hardware schedule edited to reflect conditions as installed.
 - g. Final keying schedule
 - h. Copies of floor plans with keying nomenclature
 - i. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
 - j. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.
- E. Inspection and Testing:
- 1. Submit a written report of the results of functional testing and inspection for fire door assemblies, in compliance with NFPA 80.
 - a. Written report to be provided to the Owner and be made available to the Authority Having Jurisdiction (AHJ).
 - b. Report to include the door number for each fire door assembly, door location, door and frame material, fire rating, and summary of deficiencies.
 - 2. Submit a written report of the results of functional testing and inspection for required egress door assemblies, in compliance with NFPA 101.
 - a. Written report to be provided to the Owner and be made available to the Authority Having Jurisdiction (AHJ).
 - b. Report to include the door number for each required egress door assembly, door location, door and frame material, fire rating, and summary of deficiencies.

1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that provides certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
 - a. Warehousing Facilities: In Project's vicinity.
 - b. Scheduling Responsibility: Preparation of door hardware and keying schedules.
 - c. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies like those indicated for this Project.
 - d. Coordination Responsibility: Assist in coordinating installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.
 - 1) Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.
2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - a. For door hardware: DHI certified AHC or DHC.
 - b. Can provide installation and technical data to Architect and other related subcontractors.
 - c. Can inspect and verify components are in working order upon completion of installation.
 - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.
4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. Fire-Rated Door Openings:
 - a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
 - b. Provide only items of door hardware that are listed products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
2. Smoke and Draft Control Door Assemblies:

- a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
 - b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
 - 3. Electrified Door Hardware
 - a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
 - 4. Accessibility Requirements:
 - a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.
- C. Pre-Installation Meetings
- 1. Keying Conference
 - a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - 2) Preliminary key system schematic diagram.
 - 3) Requirements for key control system.
 - 4) Requirements for access control.
 - 5) Address for delivery of keys.
 - 2. Pre-installation Conference
 - a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Inspect and discuss preparatory work performed by other trades.
 - c. Inspect and discuss electrical roughing-in for electrified door hardware.
 - d. Review sequence of operation for each type of electrified door hardware.
 - e. Review required testing, inspecting, and certifying procedures.
 - f. Review questions or concerns related to proper installation and adjustment of door hardware.
 - 3. Electrified Hardware Coordination Conference:
 - a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping.

- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
- C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
- D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- E. Existing Openings: Where existing doors, frames and/or hardware are to remain, field verify existing functions, conditions and preparations and coordinate to suit opening conditions and to provide proper door operation.

1.07 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.
 - 1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
 - 2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.
 - a. Mechanical Warranty
 - 1) Locks
 - a) Schlage L Series: 3 year
 - 2) Exit Devices
 - a) Von Duprin: 3 year
 - 3) Closers
 - a) LCN 4000 Series: 30 year
 - b. Electrical Warranty
 - 1) Locks
 - a) Schlage: 1 year

1.08 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.
- B. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- C. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fasteners

- 1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
- 2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
- 3. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru bolts are required.
- 4. Install hardware with fasteners provided by hardware manufacturer.

B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

- 1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

C. Cable and Connectors:

- 1. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with number and gage of wires enough to accommodate electric function of specified hardware.
- 2. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices.
- 3. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Ives 5BB series
2. Acceptable Manufacturers and Products:
 - a. McKinney TA/T4A series
 - b. Stanley FBB series

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
9. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
10. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.04 FLUSH BOLTS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Trimco

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.05 MORTISE LOCKS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage L9000 series

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide indicator window measuring a minimum 2-inch x 1/2 inch with 180-degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide switches and sensors integrated into the locks and latches. Provide motor based electrified locksets with electrified options as scheduled in the hardware sets and comply with the following requirements:
 - a. Universal input voltage – single chassis accepts 12 or 24VDC to allow for changes in the field without changing lock chassis.

- b. Fail Safe/Fail Secure – changing mode between electrically locked (fail safe) and electrically unlocked (fail secure) is field selectable without opening the lock case.
 - c. Low maximum current draw – maximum 0.4 amps to allow for multiple locks on a single power supply.
 - d. Low holding current – maximum 0.01 amps to produce minimal heat, eliminate “hot levers” in electrically locked applications, and to provide reliable operation in wood doors that provide minimal ventilation and air flow.
 - e. Connections – provide quick-connect Molex system standard.
8. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
- a. Lever Design: 12A

2.06 EXIT DEVICES

A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product:
 - a. Von Duprin 98/35A series
- 2. Acceptable Manufacturers and Products:
 - a. Precision APEX 2000 series
 - b. Falcon 24/25 series

B. Requirements:

- 1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
- 2. Cylinders: Refer to "KEYING" article, herein.
- 3. Provide smooth touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
- 4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
- 5. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
- 6. Provide exit devices with weather resistant components that can withstand harsh conditions of various climates and corrosive cleaners used in outdoor pool environments.
- 7. Provide flush end caps for exit devices.
- 8. Provide exit devices with manufacturer's approved strikes.
- 9. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
- 10. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
- 11. Provide cylinder or hex-key dogging as specified at non fire-rated openings.
- 12. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.

13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
14. Provide electrified options as scheduled.
15. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
16. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.07 CYLINDERS

A. BEST

1. Manufacturers:
 - a. Scheduled Manufacturer and Product:
 - 1) BEST tie into owner's existing key system as required.
 - b. Acceptable Manufacturers and Products:
 - 1) No Substitute
2. Requirements:
 - a. Provide cylinders/cores to match Owner's existing key system, compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset, manufacturer's series as indicated. Refer to "KEYING" article, herein.

B. Construction Keying:

1. Replaceable Construction Cores.
 - a. Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
 - 1) 3 construction control keys
 - 2) 12 construction change (day) keys.
 - b. Owner or Owner's Representative will replace temporary construction cores with permanent cores.

2.08 KEYING

A. Scheduled System:

1. Existing factory registered system:
 - a. Provide cylinders/cores keyed into Owner's existing factory registered keying system. Comply with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

1. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.

- a. Master Keying system as directed by the Owner.
2. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
3. Provide keys with the following features:
 - a. Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
 - b. Patent Protection: Keys and blanks protected by one or more utility patent(s).
4. Identification:
 - a. Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
 - b. Identification stamping provisions must be approved by the Architect and Owner.
 - c. Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
 - d. Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - e. Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
5. Quantity: Furnish in the following quantities.
 - a. Change (Day) Keys: 3 per cylinder/core.
 - b. Permanent Control Keys: 3.
 - c. Master Keys: 6.

2.09 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. LCN 4040XP series

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter with 5/8-inch (16 mm) diameter double heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.

7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.10 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Trimco

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.11 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:
 - a. Glynn-Johnson
2. Acceptable Manufacturers:
 - a. Rixson
 - b. Sargent

B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.
2. Provide friction type at doors without closer and positive type at doors with closer.

2.12 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Trimco
 - b. Burns

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.13 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Zero International
2. Acceptable Manufacturers:
 - a. National Guard
 - b. Reese

B. Requirements:

1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
4. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.

2.14 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Trimco

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.15 DOOR POSITION SWITCHES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Schlage
2. Acceptable Manufacturers:
 - a. GE-Interlogix
 - b. Sargent

B. Requirements:

1. Provide recessed or surface mounted type door position switches as specified.
2. Coordinate door and frame preparations with door and frame suppliers. If switches are being used with magnetic locking device, provide minimum of 4 inches (102 mm) between switch and magnetic locking device.

2.16 FINISHES

A. FINISH: BHMA 626/652 (US26D); EXCEPT:

1. Hinges at Exterior Doors: BHMA 630 (US32D)
2. Aluminum Geared Continuous Hinges: BHMA 628 (US28)
3. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
4. Protection Plates: BHMA 630 (US32D)
5. Overhead Stops and Holders: BHMA 630 (US32D)
6. Door Closers: Powder Coat to Match
7. Wall Stops: BHMA 630 (US32D)
8. Latch Protectors: BHMA 630 (US32D)
9. Weatherstripping: Clear Anodized Aluminum
10. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.
- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- D. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Where on-site modification of doors and frames is required:
 - 1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
 - 2. When modifications are exposed to view, use concealed fasteners, when possible.
 - 3. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:
 - a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
 - b. Wood Doors: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
 - c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

3.03 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
 - 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
 - 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

- F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.
- H. Lock Cylinders:
 - 1. Install construction cores to secure building and areas during construction period.
 - 2. Replace construction cores with permanent cores as indicated in keying section.
- I. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:
 - 1. Conduit, junction boxes and wire pulls.
 - 2. Connections to and from power supplies to electrified hardware.
 - 3. Connections to fire/smoke alarm system and smoke evacuation system.
 - 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 - 5. Connections to panel interface modules, controllers, and gateways.
 - 6. Testing and labeling wires with Architect's opening number.
- J. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- K. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- L. Closer/Holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- M. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- N. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
- O. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- P. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- Q. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- R. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.04 FIELD QUALITY CONTROL

- A. Inspection and Testing:
 - 1. Provide functional testing and inspection of fire door assemblies by a qualified person in accordance with NFPA 80.
 - a. Schedule fire door assembly inspection within 90 days of Substantial Completion of the Project.
 - b. Submit a signed, written final report as specified in Paragraph 1.03.E.1.
 - c. Correct all deficiencies and schedule a reinspection of fire door assemblies noted as deficient on the inspection report.
 - d. Inspector to reinspect fire door assemblies after repairs are made.

2. Provide inspection of required egress door assemblies by a qualified person in accordance with NFPA 101.
 - a. Schedule egress door assembly inspection within 90 days of Substantial Completion of the Project for the required openings.
 - b. Submit a signed, written final report as specified in Paragraph 1.03.E.2.
 - c. Correct all deficiencies and schedule a reinspection of egress door assemblies noted as deficient on the inspection report.
 - d. Inspector to reinspect required egress door assemblies after repairs are made.

3.05 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 1. Spring Hinges: Adjust to achieve positive latching when door can close freely from an open position of 30 degrees.
 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.06 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items per manufacturer's instructions to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.07 DOOR HARDWARE SCHEDULE

- A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.
- C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
- D. Hardware Sets:

Abbreviation	Name
BES	Best Locking Systems
GLY	Glynn-Johnson Corp
IVE	H.B. Ives
LCN	Lcn Commercial Division
MIS	Misc - Out-Sourced Items
SAR	Sargent Manufacturing Co
SCE	Schlage Electronic Security
SCH	Schlage Lock Company
TGP	Technical Glass Products
VON	Von Duprin
ZER	Zero International Inc

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Hardware Group No. 01

Provide each SGL door(s) with the following:

QT Y		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		652	IVE
1	EA	ELECTRIC HINGE	5BB1HW 4.5 X 4.5 CON TW8		✓ 652	IVE
1	EA	MORTISE CYLINDER	1E74		626	BES
			CAM AS REQUIRED			
1	EA	ELEC PANIC HARDWARE	RX-LC-9875-L-M996-02-FSE-CON		✓ 626	VON
1	EA	SURFACE CLOSER	4040XP EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	SET	GASKETING	870AA-S		AA	ZER
1	EA	DOOR BOTTOM	364AA		AA	ZER
1	EA	MOUNTING BRACKET	870SPB			ZER
1	EA	WIRE HARNESS	CON-XX-P LENGTH AS REQUIRED		✓	SCH
			FOR USE WITH DOOR			
1	EA	WIRE HARNESS	CON-6W		✓	SCH
			FOR USE WITH HINGE			
1	EA	CARD READER	BY SECURITY CONTRACTOR			MIS
1	EA	DOOR CONTACT	679-05HM/679-05WD		✓ BLK	SCE
1	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		✓	MIS

OPERATIONAL DESCRIPTION:

1. DOOR NORMALLY CLOSED AND LOCKED.
2. ENTRY BY VALID CREDENTIAL AT CARD READER WHICH SIGNALS TRIM OF EXIT DEVICE TO OPEN AND ALLOW ENTRY.
3. FREE EGRESS AT ALL TIMES VIA THE PANIC DEVICE.
4. PANIC DEVICE HAS RX SWITCH WHICH WILL SIGNAL ACCESS CONTROL SYSTEM OF A VALID RELEASE.
5. TRIM IS FAIL-SECURE UPON LOSS OF POWER DOOR WILL REMAIN LOCKED.

Hardware Group No. 03

Provide each SGL door(s) with the following:

QT Y		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 PROVIDE POE HINGE IF REQUIRED		652	IVE
1	EA	MORTISE CYLINDER	1E74 CAM AS REQUIRED		626	BES
1	EA	ELECTRONIC LOCK	SARGENT IN-120 SERIES LESS CYLINDER COORDINATE FUNCTION AND LEVER DESIGN WITH OWNER	 ✕	626	SAR
1	EA	SURFACE CLOSER	4040XP RW/PA		689	LCN
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	SET	PERIMETER SEALS	BY ALUM DR MFG			MIS

OPERATIONAL DESCRIPTION:

1. DOOR NORMALLY CLOSED AND LOCKED.
2. ENTRY BY VALID CREDENTIAL AT CARD READER WHICH SIGNALS ELECTRIC TRIM OF LOCK TO OPEN AND ALLOW ENTRY.
3. FREE EGRESS AT ALL TIMES VIA THE INSIDE LEVER HANDLE.
4. INSIDE LEVER HANDLE HAS RX SWITCH WHICH WILL SIGNAL ACCESS CONTROL SYSTEM OF A VALID RELEASE.
5. LOCK IS FAIL-SECURE UPON LOSS OF POWER DOOR WILL REMAIN LOCKED.

Hardware Group No. 05

Provide each SGL door(s) with the following:

QT Y		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	MORTISE CYLINDER	1E74 CAM AS REQUIRED		626	BES
1	EA	OFFICE/ENTRY LOCK	L9050L 12A 09-544		626	SCH
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	SET	PERIMETER SEALS	BY ALUM DR MFG			MIS

Hardware Group No.05.1

Provide each SGL door(s) with the following:

QT Y		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	MORTISE CYLINDER	1E74 CAM AS REQUIRED		626	BES
1	EA	OFFICE/ENTRY LOCK	L9050L 12A 09-544		626	SCH
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

DOOR HARDWARE

087100-22

Hardware Group No. 08

Provide each SGL door(s) with the following:

QT Y		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	PRIVACY LOCK	L9040 12A 09-544 L283-722		626	SCH
1	EA	SURFACE CLOSER	4040XP RW/PA		689	LCN
1	EA	MOP PLATE	8400 10" X 1" LDW B-CS		630	IVE
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 09

Provide each SGL door(s) with the following:

QT Y		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 PROVIDE POE HINGE IF REQUIRED		652	IVE
1	EA	MORTISE CYLINDER	1E74 CAM AS REQUIRED		626	BES
1	EA	ELECTRONIC LOCK	SARGENT IN-120 SERIES LESS CYLINDER COORDINATE FUNCTION AND LEVER DESIGN WITH OWNER	 ✎	626	SAR
1	EA	SURFACE CLOSER	4040XP RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	GASKETING	488FSBK PSA		BK	ZER

OPERATIONAL DESCRIPTION:

1. DOOR NORMALLY CLOSED AND LOCKED.
2. ENTRY BY VALID CREDENTIAL AT CARD READER WHICH SIGNALS ELECTRIC TRIM OF LOCK TO OPEN AND ALLOW ENTRY.
3. FREE EGRESS AT ALL TIMES VIA THE INSIDE LEVER HANDLE.
4. INSIDE LEVER HANDLE HAS RX SWITCH WHICH WILL SIGNAL ACCESS CONTROL SYSTEM OF A VALID RELEASE.
5. LOCK IS FAIL-SECURE UPON LOSS OF POWER DOOR WILL REMAIN LOCKED.

Hardware Group No. 10

Provide each PR door(s) with the following:

QT Y		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		652	IVE
2	EA	MANUAL FLUSH BOLT	FB458		626	IVE
1	EA	DUST PROOF STRIKE	DP2		626	IVE
1	EA	MORTISE CYLINDER	1E74		626	BES
			CAM AS REQUIRED			
1	EA	CLASSROOM LOCK	L9070L 12A		626	SCH
2	EA	OH STOP	100S		630	GLY
2	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 11

Provide each SGL door(s) with the following:

QT Y		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	MORTISE CYLINDER	1E74		626	BES
			CAM AS REQUIRED			
1	EA	STOREROOM LOCK	L9080L 12A		626	SCH
1	EA	SURFACE CLOSER	4040XP RW/PA		689	LCN
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No.11.1

Provide each SGL door(s) with the following:

QT Y		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
4	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		652	IVE
1	EA	MORTISE CYLINDER	1E74		626	BES
			CAM AS REQUIRED			
1	EA	STOREROOM LOCK	L9080L 12A		626	SCH
1	EA	SURFACE CLOSER	4040XP EDA		689	LCN
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 12

Provide each SL door(s) with the following:

QT Y		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	MORTISE CYLINDER	1E74 CAM AS REQUIRED /1E72 AS REQUIRED		626	BES
1	EA	BALANCE OF HARDWARE	BY DOOR MANUFACTURER			MIS

Hardware Group No.13

Provide each PR door(s) with the following:

QT Y		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5 NRP PROVIDE POE HINGE IF REQUIRED		652	IVE
1	EA	AUTO FLUSH BOLT	FB31P		630	IVE
1	EA	DUST PROOF STRIKE	DP2		626	IVE
1	EA	MORTISE CYLINDER	1E74 CAM AS REQUIRED		626	BES
1	EA	ELECTRONIC LOCK	SARGENT IN-120 SERIES LESS CYLINDER COORDINATE FUNCTION AND LEVER DESIGN WITH OWNER	✍	626	SAR
1	EA	COORDINATOR	COR7G		626	IVE
2	EA	SURFACE CLOSER	4040XP SCUSH		689	LCN
2	EA	PA MOUNTING PLATE	4040XP-18PA SRT		689	LCN
2	EA	CUSH SHOE SUPPORT	4040XP-30 SRT		689	LCN
2	EA	BLADE STOP SPACER	4040XP-61 SRT		689	LCN
1	SET	PERIMETER SEALS	BY ALUM DR MFG			MIS

OPERATIONAL DESCRIPTION:

1. DOOR NORMALLY CLOSED AND LOCKED.
2. ENTRY BY VALID CREDENTIAL AT CARD READER WHICH SIGNALS ELECTRIC TRIM OF LOCK TO OPEN AND ALLOW ENTRY.
3. FREE EGRESS AT ALL TIMES VIA THE INSIDE LEVER HANDLE.
4. INSIDE LEVER HANDLE HAS RX SWITCH WHICH WILL SIGNAL ACCESS CONTROL SYSTEM OF A VALID RELEASE.
5. LOCK IS FAIL-SECURE UPON LOSS OF POWER DOOR WILL REMAIN LOCKED.

END OF SECTION

SECTION 088000

GLASS AND GLAZING

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes glass and glazing for:
 - 1. Windows.
 - 2. Entrances.
- B. Related sections:
 - 1. Section 08 11 13 – Hollow Metal Doors and Frames.
 - 2. Section 08 11 13 – Aluminum Windows and Entrances.

1.2 REFERENCES

- A. Comply with the recommendations of the following references unless more stringent requirements are indicated herein.
 - 1. FGMA Publications: FGMA Glazing Manual.
 - 2. LSGA Publications: LSGA Design Guide.
 - 3. SIGMA Publications: TM-3000 Vertical Glazing Guidelines.
 - 4. Safety Glass: Products complying with ANSI Z97.1 and testing requirements of 16 CFR Part 1201, Safety Standards for Architectural Glazing, Sealed Insulating Glass Manufacturing Association.
 - 5. Fire-Resistive Glazing Products for Door Assemblies: Products identical to those tested per ASTM E 152, labeled and listed by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 6. ASTM C 920-14a, Standard Specification for Elastomeric Joint Sealants.
 - 7. Insulating Glass Criteria: IGCC International Glass Certification Council.
 - 8. Security Glazing: H.P. White Laboratory, Inc., HPW-TP-0500 "Test Procedure – Transparent Materials For Use In Forced Entry Or Containment Barriers."

1.3 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: 37 psf, but not less than wind loads applicable to Project as required by ASCE 7 "Minimum Design Loads for Buildings and Other Structures": Section 6.0 "Wind Loads."
 2. Probability of Breakage for Vertical Glazing:
 - a. 8 lites per 1000 for lites set vertically.
 - 1). 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 1/2", whichever is less.
- C. Thermal Movements: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
- a. Temperature Change (Range): 120 deg. F ambient; 180 deg F, material surfaces.
- D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:
1. For monolithic-glass lites, properties are based on units with lites [6.0 mm thick] [of thickness indicated].
 2. For laminated-glass lites, properties are based on products of construction indicated.
 3. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
 4. Center-of-Glass Values: Based on using LBL-44789 WINDOW 5.0 computer program for the following methodologies:
 - a. U-Factors: NFRC 100 expressed as Btu/ sq. ft. x h x deg F (W/sq. m x K).
 - b. Solar Heat Gain Coefficient: NFRC 200.
 - c. Solar Optical Properties: NFRC 300.
- E. Glass units shall be annealed, heat strengthened, fully tempered or laminated where required to meet wind load and safety glazing requirements, as shown, specified, or recommended by the glass fabricator, and as required by the prevailing Building Code.
- F. Security Glazing: Exterior glass in perimeter glazed assemblies shall have enhanced shatter resistance, achieved via the use of tempered glass and a 7mm minimum safety film. Glazing shall meet the following:
1. GSA glazing protection level 3b,
 2. ASTM F 1915-05 Grade 3,
 3. HPW-TP-0500 Forced Entry Level 3 and Ballistics Level B.
 4. WMFL 30-minute Attack Resistance.

1.4 SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Samples: For the following products, in the form of 12-inch- (300-mm-) square Samples for glass.
 - 1. Insulating glass for each designation indicated.
 - 2. For each color (except black) of exposed glazing sealant indicated.
- C. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.
- D. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.
 - 1. For solar-control low-e-coated glass, provide documentation demonstrating that manufacturer of coated glass is certified by coating manufacturer.
- 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 Jersey.
- F. Preconstruction Adhesion and Compatibility Test Report: From glazing sealant manufacturer indicating glazing sealants were tested for adhesion to glass and glazing channel substrates and for compatibility with glass and other glazing materials.
- G. Product Test Reports: For each of the following types of glazing products:
 - 1. Tinted float glass.
 - 2. Coated float glass.
 - 3. Insulating glass.
 - 4. Glazing sealants.
 - 5. Glazing gaskets.
 - 6. Security glazing materials.
- H. Warranties: Special warranties specified in this Section.

1.5 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 ten (10) 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. Glazing for Fire-Rated Door Assemblies: Glazing for assemblies that comply with NFPA 80 and that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252.
- F. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201 and, for wire glass, ANSI 97.1.
 - 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.
- G. 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.
- H. Manufacturer shall be ISO 9001-2000 Certified.

1.6 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.

1.7 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.

1.8 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.

1.9 WARRANTIES

- A. General: Warranties shall be in addition to, and not a limitation of, other rights the Authority 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 replace at no cost to the Authority, the School District, or to the Architect, 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 Insulating Glass: Provide written warranty signed by manufacturer of insulating glass agreeing to replace any insulating glass units developing manufacturing defects at no cost to the Authority. Manufacturing defects are defined as failure or hermetic seal of air space (beyond that due to glass breakage) as evidenced by intrusion of dirt or moisture, internal condensation or fogging, deterioration of protected internal glass coatings, if any, and other visual indications of seal failure or performance; provided the manufacturer's instructions for handling, installing, protecting and maintaining units have been complied with during the warranty period.
 - 1. Warranty Period: Manufacturer's standard but not less than ten (10) years after date of substantial completion.
- D. Manufacturer's Special Project Warranty on Laminated Glass: Manufacturer's standard form, made out to Authority and signed by laminated glass manufacturer agreeing to replace laminated glass units that deteriorate as defined in "Definitions" Article, f.o.b. to the project site, within specified warranty period indicated below.
 - 1. Warranty period five (5) years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- 1. Basis of Design: Vitro Architectural Glass, formerly PPG (or approved equal).

2.2 FLOAT GLASS PRODUCTS

- A. General: All glass and glazing used at the exterior of the Project shall be manufactured by the same manufacturer. The same manufacturer and the same furnace shall be used for all tempered and heat strengthened glass used throughout the project:
- B. Clear Float Glass: ASTM C 1036, Type I (transparent, flat), Class 1 (clear), Quality q3, minimum 1/4" thick.
- C. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent flat glass); Quality-Q3; of class, kind, and condition indicated.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
 2. Provide Kind HS (heat-strengthened) float glass.
 3. For uncoated glass, comply with requirements for Condition A.
 4. For coated vision glass, comply with requirements for Condition C (other uncoated glass).
- D. Translucent Heat-Treated Float Glass: ASTM C 1036; Type II (patterned flat glass); Class 1 (clear), Form 3 (patterned), Quality-Q3, Condition C, of kind indicated.
1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
 2. Provide Kind HS (heat-strengthened) float glass.
 3. Finish F1 (patterned one side).
 4. Basis of Design: Optifloat Opal by Pilkington (or approved equal).
- E. 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.
1. Performance Requirements for Tempered Glass
 - a. Length and Width: For 2.9 mm to 6.0 mm; +/-1.6 mm.
 - b. Diagonal: +/- 3.0 mm.
 - c. Edgework: Belt seaming or diamond wheels. 1.5 mm seam of upper and lower glass edges. No sharp edges.
 - d. Corners: No more than 3.0 mm from square.
 - e. 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.
 - f. Tempered glass shall have a minimum surface compression of 10,000 psi.
 - g. 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.
 - h. Flatness Tolerances
 - 1). 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.
 - 2). Bow and Warp: The bow and warp tolerances shall not exceed 1/32" per linear foot.
 - 3). Fully tempered glass shall be heat soaked to EN 14179-1:2005-European Heat Soaking Standard.
- F. Ultra-Clear Low-Iron Tempered Glass: ASTM C 1048, Condition A (uncoated), Type I (transparent, flat), Class 1 (clear), Quality q3, Kind FT. Tempered glass must be certified by SGCC to meet applicable standards
1. Basis of Design: "Acuity" by Vitro Architectural Glass (or approved equal).
 - a. Minimum visible light transmission: 91%

- b. Maximum solar heat gain coefficient: 0.90
 - c. Maximum visible light reflectance: 8%
 - d. Maximum winter nighttime U-value: 1.02
- G. Sputter-Coated Low-E Tempered Glass: ASTM C 1048, Condition A (uncoated), Type I (transparent, flat), Class 1 (clear), Quality q3, Kind FT, with metallic-oxide or -nitride coating deposited by vacuum deposition process after manufacture and heat treatment (if any), and complying with other requirements specified.
 - 1. Basis of Design: Solarban 72 on Acuity by Vitro Architectural Glass (or approved equal).
 - a. Minimum visible light transmission: 71%
 - b. Maximum solar heat gain coefficient: 0.30
 - c. Maximum visible light reflectance: 13%
 - d. Maximum winter nighttime U-value: 0.29

2.3 FIRE-RESISTIVE GLAZING PRODUCTS

- A. Fire-Rated Glazing Material: Proprietary product in the form of clear flat sheets of 3/16" nominal thickness weighing 2.5 lb./sq. ft., and as follows:
 - 1. Basis of Design: "Premium FireLite" by Nippon Electric Glass Co., Ltd. (or approved equal).
 - 2. Fire Protection Rating: As required by Code for the fire rated opening in which glazing material is installed, and permanently labeled by a testing and inspecting agency acceptable to authorities having jurisdiction.

2.4 LAMINATED GLAZING PRODUCTS

- A. Laminated Safety Glass: Provide two glass panes of equal thickness, laminated together with a polyvinyl butyl interlayer, conforming to ASTM C 1172 and as follows:
 - 1. Glass type: Heat Treated Float Glass, 1/4-inch thick per layer.
 - 2. Interlayer:
 - a. Basis of Design: Saflex by Eastman Chemical (or approved equal).
 - b. Color: Clear, unless otherwise noted. Translucent where indicated on the Drawings.
 - c. Thickness: 0.030" thick at vertical applications, and 0.060" thick at sloped or horizontal applications.

2.5 INSULATING GLAZING PRODUCTS

- A. Insulating Glass: Insulating glass unit shall consist of glass as scheduled below. 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, as specified below.
 - a. For structurally glazed IG units, secondary seal shall conform to ASTM C 1249.

- b. Primary and secondary seals shall not contain voids and must be continuously bonded to the glass structure.
4. Spacer: Stainless steel with welded, soldered, or bent corners, hollow tube types, filled with low nitrogen absorption desiccant.
5. Desiccant: Molecular sieve, silica gel, or blend of both.
6. Interspace Content: Argon.
7. 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.
8. 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.
9. 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". 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", and the total cumulative length of the primary seal between 1/16" and 1/8" shall be less than 12" 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". Provide a total width of the primary and secondary seal of 1/2". Units shall carry CBA rating as established by ASTM E

774 and shall meet SIGMA 65-7-2, latest edition. Units shall not contain breather or capillary tubes or similar penetrations.

2.6 GLAZING SEALANTS

- 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.
 - 1. Basis of Design: Dow Corning 795 (or approved equal).
- C. Weather Seal Sealant: Provide non-acid curing sealant with movement range $\pm 50\%$, ASTM C 719:
 - 1. Basis of Design: Dow Corning 795 (or approved equal).
- 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 ± 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 C 1281 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% 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 ± 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. 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.

2.7 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.

2.8 GLASS SCHEDULE

- A. GL-1: 3/8" clear tempered
- B. GL-2: 60-minute fire rated; refer to section 084123

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. Verify that Insulating Glass Unit (IGU) secondary seal is compatible with glazing sealants.
- C. Install glass in prepared glazing channels and other framing members.
- D. Install setting blocks in rabbets as recommended by referenced glazing standards in GANA's "Glazing Manual" and IGMA's "Glazing Guidelines."
- E. Provide bite on glass, minimum edge and face clearances and glazing material tolerances recommended by GANA's "Glazing Manual."
- F. Provide weep system as recommended by GANA's "Glazing Manual."
- G. Set glass lites in each series with uniform pattern, draw, bow and similar characteristics.

- H. Distribute the weight of glass unit along the edge rather than the corner.
- I. 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.
- J. Protect glass edge damage during handling and installation.
- K. Prevent glass from contact with contaminating substances that result from construction operations, such as weld spatter, fireproofing or plaster.
- L. 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 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.

3.9 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.

END OF SECTION

SECTION 089000

LOUVERS AND VENTS

PART 1 GENERAL

1.2 Summary

A. Section includes:

1. Aluminum louvers.
2. Bird screens.
3. Metal sills
4. Metal mullion cladding

1.4 REFERENCES

- A. AAMA 2604 – High Performance Organic Coatings on Architectural Extrusions and Panels.
- B. AAMA 2605 - High Performance Organic Coatings on Architectural Extrusions and Panels.
- C. AMCA 500 - Test Methods for Louvers, Dampers and Shutters.
- D. AMCA 511 - Certified Ratings Program for Air Control Devices.
- E. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- F. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- G. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- H. ASTM D822 - Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings
- I. ASTM D4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.
- J. ASTM D2244 - Standard Test Method for Calculation of Color Differences From Instrumentally Measured Color Coordinates.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. The manufacturer shall have implemented the management of quality objectives, continual improvement, and monitoring of customer satisfaction to assure that customer needs and expectations are met.
- p
2. Manufacturer shall be International Organization for Standardization (ISO) 9000 accredited.

B. Product Qualifications:

1. Louvers licensed to bear AMCA Certified Ratings Seal. Ratings based on tests and procedures performed in accordance with AMCA 511 and comply with AMCA Certified Ratings Program. AMCA Certified Ratings Seal applies to air performance and water penetration ratings.
2. Louver shall be of welded construction.

1.6 SUBMITTALS

- A. Product Data: For each product to be used, including:
 - 1. Manufacturer's product data including performance data.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Installation methods.
- B. Samples: Manufacturer's full line of colors
- C. Shop Drawings: Submit shop drawings indicating materials, construction, dimensions, accessories, and installation details.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store materials in a dry area indoors, protected from damage and in accordance with manufacturer's instructions.
- C. Handling: Protect materials and finishes during handling and installation to prevent damage.
- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

- A. Manufacturer shall provide standard limited warranty for louver systems for a period of 1 year from date of installation, no more than 18 months after shipment from manufacturing plant. When notified in writing from the Owner of a manufacturing defect, manufacturer shall promptly correct deficiencies without cost to the Owner.
- B. Manufacturer shall provide 20-year limited warranty for fluoropolymer-based finish on extruded aluminum substrates.
 - 1. Finish coating shall not peel, blister, chip, crack or check.
 - 2. Chalking, fading or erosion of finish when measured by the following tests:
 - a. Finish coating shall not chalk in excess of 8 numerical ratings when measured in accordance with ASTM D4214.
 - b. Finish coating shall not change color or fade in excess of 5 NBS units as determined by ASTM D2244 and ASTM D822.
 - c. Finish coating shall not erode at a rate in excess of .01 mils

PART 2 PRODUCTS

2.1 HEAVY DUTY STATIONARY LOUVER

- A. Fabrication: Hidden support style.

1. Basis of Design. Model: ELF375XH by Ruskin Company; 3900 Dr. Greaves Road, Kansas City, Missouri 64030. Tel: (816) 761-7476, www.ruskin.com; Or approved equal
 2. Frame:
 - a. Frame Depth: 4 inches.
 - b. Material: Extruded aluminum, Alloy 6063-T5.
 - c. Wall Thickness: 0.125 inch, nominal.
 3. Blades:
 - a. Style: Horizontal "J".
 - b. Material: Formed aluminum, Alloy 6063-T5.
 - c. Thickness: 0.125 inch, nominal.
 - d. Angle: 37-1/2 degrees.
 - e. Centers: 5-3/32 inches, nominal.
 4. Gutters: Drain gutter in head frame.
 5. Downspouts: Downspouts in jambs to drain water head.
 6. Fabrication: Hidden vertical supports to allow continuous line appearance with exposed mullions spaced a maximum of 120 inches.
 - a. Mullion/Hidden Intermediate Support Style
 7. Assembly: Factory assembled louver components. Welded construction.
 8. Finish: 70 percent Floropolymer-Based Painted Finishes (Kynar):
 - a. Coating shall conform to AAMA 2605. Apply coating following cleaning and pretreatment. Cleaning: AA-C12C42R1X.
 - b. Standard 2-coat.
 - c. Color: To be selected by Architect from Manufacturer's full line of colors
- B. Performance Data:
1. Performance Ratings: AMCA licensed.
 - a. Based on testing 48 inch by 48 inch (1219 mm by 1219 mm) size unit in accordance with AMCA 500.
 2. Free Area: 54 percent, nominal.
 3. Maximum Recommended Air Flow through Free Area: 803 feet per minute (245 m/min).
 4. Air Flow: 6890 cubic feet per minute (196 cu. m/min).
 5. Maximum Pressure Drop (Intake): .125 inches w.g. (31.1 Pa).
 6. Water Penetration: Maximum of 0.01 ounces per square foot (3.1 g/sm) of free area at an air flow of 803 feet per minute (245 m/min) free area velocity when tested for 15 minutes.
- 2.2 ACCESSORIES
- A. Bird Screen:
1. Aluminum: Aluminum, 3/4 inch by 0.051 inch, expanded, flattened.
 2. Frame: Removable, rewirable.
- B. Extended Sills:
1. Extruded aluminum, Alloy 6063-T5. Minimum nominal thickness 0.081 inch

2. Finish: 70 percent Floropolymer-Based Painted Finishes (Kynar):
 - a. Coating shall conform to AAMA 2605. Apply coating following cleaning and pretreatment. Cleaning: AA-C12C42R1X.
 - b. Standard 2-coat.
 - c. Color: To be selected by Architect from Manufacturer's full line of colors
 - C. Mullion covers and metal trim:
 1. Aluminum, 0.032 inch
 2. Finish: 70 percent Floropolymer-Based Painted Finishes (Kynar):
 - a. Coating shall conform to AAMA 2605. Apply coating following cleaning and pretreatment. Cleaning: AA-C12C42R1X.
 - b. Standard 2-coat.
 - c. Color: To match louver color
 - 2.4 MISCELLANEOUS
 - A. Bituminous Paint: SSPC-PAINT 12 (Cold applied asphalt mastic).
 - B. Sealant
 1. For joints between stucco and aluminum louvers:
 - a. Single component polyurethane, Sonolastic NP1, or approved equal
 - b. Complying with: Type S, Grade P, Class 25, Use T, M
 - c. Color: to be selected by Architect for manufacturer's full line of colors
- PART 3 EXECUTION**
- 3.1 EXAMINATION
 - A. Inspect areas to receive louvers. Notify the Architect of conditions that would adversely affect the installation or subsequent utilization of the louvers. Do not proceed with installation until unsatisfactory conditions are corrected.
 - B. If opening preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
 - 3.2 PREPARATION
 - A. Clean opening 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 louvers at locations indicated on the drawings and in accordance with manufacturer's instructions.
 - B. Install louvers plumb, level, in plane of wall, and in alignment with adjacent work.
 - C. Where louvers are in contact with concrete, masonry or a dissimilar metal, coat the contacting surface with a heavy coat of bituminous paint.
 - 3.4 CLEANING
 - A. Clean louver surfaces in accordance with manufacturer's instructions.
 - B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 092900

GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Gypsum board work for partitions, ceilings, 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 grab bars, toilet accessories, AV and other items supported on drywall partitions and walls.
6. Taping and finishing of drywall boards. Level 4 and Level 5 as indicated below.
7. Taping and finishing of drywall joints.
8. Factory fabricated tapable mouldings and decorative trim and reveals.
9. Installing rings and frames in drywall surfaces for grilles, registers and lighting fixtures.
10. Bracing and connections.

B. Related sections

1. Section 08 11 13 – Hollow Metal Doors and Frames.
2. Section 08 31 13 – Access doors.
3. Section 09 90 00 – Painting.
4. Rings for grilles, registers and light fixtures - Division 23 and 26.

1.2 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.

1.3 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.

1.4 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.

1.5 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.

1.6 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, Lafarge North America, 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 Building Systems, Super Stud Building Products, Marino/Ware, or approved equal.

2.2 METAL SUPPORTS

A. Metal Floor and Ceiling Runners

1. Channel Type: Formed from 20 U.S. Std. gauge (unless otherwise noted) galvanized steel, width to suit channel type metal studs. Use 20 ga. top runners with 1-1/4" minimum flanges.
2. Ceiling runners and 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 20 ga. galvanized steel for clips, 25 ga. galvanized steel for ceiling runners. Providing a friction free – anti-seizure movement capacity.
 - a. 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. "J" Type: Formed from 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. Channel Type Studs: Channel type with holes for passage of conduit formed from minimum 20 U.S. Std. gauge (unless heavier gauge is required to meet deflection limits) galvanized steel, width as shown on drawings.
2. Furring Channels: Hat shaped, formed from galvanized steel, 25 U.S. Std. gauge.
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.
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.
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.

6. At walls indicated on drawings to support future installation of shelving systems: Continuous 16 gauge x 8" wide steel wall plate screwed to studs at horizontal dimensions described on drawings.
- 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.
- D. All galvanized steel members shall have coating conforming to ASTM A 653, G60.
- 2.3 GYPSUM WALLBOARD TYPES
- A. Gypsum Wall Board: 5/8" thick unless indicated otherwise 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. Use 5/16 type XP for radius applications.
 - B. Fire Rated Gypsum Wall Board: 5/8" thick unless indicated otherwise on drawings, "Sheetrock Firecode C" by USG, "Firecheck Type C" by Lafarge/Continental, or "Gold Bond Fireshield" by National Gypsum, 48" wide, in maximum lengths available to minimize end-to-end butt joints.
 - C. Water Resistant Backing Board for Tile Finish: 5/8" thick, "Fiberock Aqua-Tough" by USG, "Dens-Shield Tile Backer Board" by Georgia Pacific, "EXP Tile Backer Board" by National Gypsum, 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 Wall Board (for areas in toilet rooms, lockers, janitor's closets not scheduled to receive ceramic tile, or where fire rating is required): 5/8" thick unless indicated otherwise 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.

1. 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.
- 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, or "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.
- F. 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, or "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.
- G. Mold Resistant Paperless Wall Board (at all perimeter walls and wet shafts): 1/2" and 5/8" thick as indicated on drawings, 48" wide "Mold Tough Glass Mat Interior Panel" by USG, "DensArmour Plus" by Georgia Pacific, "Weather Defense Platinum Interior" by Lafarge/Continental, "Gold Bond Brand EXP Interior Extreme" by National Gypsum, or approved equal that has a rating of 10 per ASTM D 3273 with core that meets ASTM C 1396, Section 6 or ASTM C 1658.
- H. Abuse Resistant Wallboard: 5/8" thick "Fiberock Brand Panel VHI Abuse Resistant" by USG, "Dens Armor Plus Abuse Resistant Panels" by Georgia-Pacific, "EXP Interior Extreme AR" or "Gold Bond Brand Hi-Abuse XP" by National Gypsum, "Protecta AR100" or "Protecta HIR 300" by Lafarge/Continental, or "AirRenew Extreme Abuse" by CertainTeed Corp., 48" wide, in maximum lengths available to minimize end-to-end butt joints.
1. Board must achieve a Level 1 rating per ASTM C 1629.

- I. Impact Resistant Wallboard: 5/8" thick unless indicated otherwise on drawings, "Fiberock Brand VHI Abuse Resistant Panel" by USG, "DensArmor Plus Impact-Resistant Panels" by Georgia-Pacific, "EXP Interior Extreme IR" or "Gold Bond Brand Hi-Impact XP" by National Gypsum, "Protecta HIR 300" by Lafarge/Continental, or "AirRenew Extreme Impact" by CertainTeed Corp., 48" wide, in maximum lengths available to minimize end-to-end butt joints.
- J. Cement Board (for tile backer board in shower areas and wherever else scheduled): ½" thick "Durock Tile Backer Board" by USG, "Wonder Board Lite" by Custom Building Products, or approved equal.

2.4 ACCESSORIES

- A. Acoustical Insulation: Paper-less, non-combustible, semi-rigid mineral fiber mat, 2" thick, in walls (unless otherwise indicated) and above ACT office ceilings as noted in the finish schedule, 3 lb./cu. ft. maximum density; Thermafiber LLC "Thermafiber," or approved equal.
- B. Fasteners for Wall Board: 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 wall board. 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 - "Dur-A-Bead" No. 103, 27 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. 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.

- G. Control Joints: No. 0.093, USG.
- H. Decorative Metal Trim: Where indicated on Drawings use "Fry Reglet Reveal" as manufactured by Fry Reglet Corp. Aluminum shall be extruded alloy 6063 T5 with chemical conversion coating. Sizes shapes and color as indicated on Drawings. Include custom shapes as well as standard factory fabricated intersections in "L" "T" and "+" shapes with welded mitered joints and 6-inch legs.
- I. Acoustical Sealant: USG "Acoustical Sealant" or "Tremco Acoustical Caulking" of Tremco Mfg. Co. or approved equal.
- J. Neoprene Gaskets: Conform to ASTM D 1056
- K. Metal Wall Base: Surface applied; Basis of Design: Elite Xpressions – Stainless Steel brushed .030 tk 22 ga. Adhesive attached. Refer to drawings for location and dimension.
- L. Recessed Painted Base Reveal: Fry Reglet DRMZ-100-100 "Z" Reveal Molding, or approved equal.

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. Wall Board 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" safin 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 screwdriver, 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 C754.
- 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 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 C840 and GA-214.
 - 2. For drywall boards at all locations to receive presentation dry erase wall covering, or any other type of wall covering, such as continuous north wall at stair, provide Level 5 finish of ASTM C840 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.

3.8 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.

3.9 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 093000

TILING

GENERAL

1.1 SUMMARY

- A. Section includes
 - 1. Wall and floor tiles in the restrooms using thin-set application method
 - 2. Thresholds at door openings.
- B. Related Sections:
 - 1. Section 07 90 00 - Joint Sealants.

1.2 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI A108.1 - Installation of Ceramic Tile, A collection.
 - 2. ANSI A108.10 - Specifications for Installation of Grout in Tilework.
 - 3. ANSI A118.1 - Standard Specification for Dry-Set Portland Cement Mortar.
 - 4. ANSI A118.3 - Chemical-Resistant, Water-Cleanable, Tile-Setting and -Grouting Epoxy and Water-Cleanable Tile-Setting Epoxy Adhesive.
 - 5. ANSI A118.4 - Latex-Portland Cement Mortar.
 - 6. ANSI A118.6 - Ceramic Tile Grouts.
 - 7. ANSI A118.8 - Modified Epoxy Emulsion Mortar/Grout.
 - 8. ANSI A137.1 - Ceramic Tile.
- B. Tile Council of America (TCA):
 - 1. TCA - Handbook for Ceramic Tile Installation.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, and setting details.
- C. Product Data: Submit instructions for using grouts and adhesives.
- D. Samples: Submit two full sized samples of each tile and color specified.
- E. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with TCA Handbook and ANSI A108 Series/A118 Series.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.
- B. Protect adhesives and grouts from freezing or overheating.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements.
- B. Do not install adhesives and grouts in unventilated environment.
- C. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

1.9 EXTRA MATERIALS

- A. Supply 10 sq ft of each size, color, and surface finish of tile specified.

PRODUCTS

2.1 TILE

- A. Manufacturers:
 - 1. Stonepeak
 - 2. American Olean Tile Co.
 - 3. Crossville Porcelain Stone.
 - 4. Dal Tile International.

2.2 COMPONENTS (TO MATCH EXISTING RESTROOMS IN THE CMFT BUILDING)

- A. Porcelain Floor Tile (CT-1): ANSI A137.1, conforming to the following:
 - 1. Basis of Design: Stonepeak Parkland; Acadia USG 1224041
 - 2. Size: 12"x24"
 - 3. Shape: Rectangular
 - 4. Pattern
 - 5. Surface Finish: Matte
- B. Ceramic Wall Tile (CT-2): ANSI A137.1, conforming to the following:
 - 1. Basis of Design: matte beige.
 - 2. Moisture Absorption: 0 to 0.5 percent.
 - 3. Size: 12"x24"
 - 4. Shape: Rectangular.
 - 5. Edge: Cushioned.
 - 6. Pattern: Running bond.
 - 7. Surface Finish: Glazed, gloss.

- C. Base. Match wall tile with 12"L tiles; match for moisture absorption, surface finish, and color:
 - 1. Top Edge: Bull nosed.
 - 2. Bottom Edge: Sanitary coved.
 - 3. Internal Corner: Coved.
 - 4. External Corner: Bullnosed.

2.3 TRIM AND SPECIAL SHAPES

- A. External corner and edge trim in walls: Finish shall be satin stainless steel. Provide matching end caps, outside and inside corner trim accessories.
 - 1. Basis of Design: Schluter "Rondec" (or approved equal).
- B. Cove base to match tile.

2.4 THRESHOLDS

- A. Marble, White Carrara color, smooth finish, 2 x 1/2-inch size by full width of wall or frame opening, beveled both sides, radiused edges from bevel to vertical face.

2.5 SETTING AND GROUTING MATERIALS

- A. Portland Cement: ASTM C 150, Type 1.
- 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 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 Building Products; Custom Crete Thin Set Additive.
- F. Adhesive Materials:
 - 1. Epoxy Adhesive: ANSI A118.3, thin-set bond type.
 - 2. Tile Setting Adhesive: Elastomeric, waterproof, liquid applied.
- G. Mortar Materials:
 - 1. Mortar Bond Coat Materials:
 - a. Latex-Portland Cement type: ANSI A118.4.
 - b. Epoxy: ANSI A118.3.
- H. Grout Materials:
 - 1. Standard Grout: Portland cement type as specified in ANSI A118.6.
 - 2. Epoxy Grout: ANSI A118.8, modified epoxy emulsion grout, color as selected; use where indicated.

2.6 MISCELLANEOUS MATERIALS

- A. Grout Sealer: Manufacturer's standard product for sealing grout joints that does not change color or appearance of grout.
 - 1. Products:
 - a. Bonsal, W. R., Company; Grout Sealer.
 - b. Bostik; CeramaSeal Grout Sealer.
 - c. C-Cure; Penetrating Sealer 978.
 - d. MAPEI Corporation; KER 004, Keraseal Penetrating Sealer for Unglazed Grout and Tile.
 - e. Substitutions – refer to Section 01 25 00.

EXECUTION

3.1 EXAMINATION

- A. Verify surfaces are ready to receive work.

3.2 PREPARATION

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

3.3 INSTALLATION

- A. Install tile, thresholds, and grout in accordance with applicable requirements of ANSI A108.1 through A108.10, and TCA Handbook recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Place thresholds at exposed tile edges. At doors, locate under door leaf when door is in closed position.
- D. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor, base and wall joints.
- E. There shall be no tile slivers less than 1-3/4 inches wide.
- F. Place tile with joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
 - 1. Ceramic Mosaic Tile: 1/8 inch.
 - 2. Quarry Tile: 3/8 inch.
- G. Form internal angles coved and external angles bullnosed.
- H. Sound tile after setting. Replace hollow sounding units.
- I. Keep control joints free of adhesive or grout. Apply sealant to joints.
- J. Allow tile to set for a minimum of 48 hours prior to grouting.
- K. Grout tile joints. Use standard grout unless otherwise indicated.
- L. Grout Sealer: Apply grout sealer to cementitious grout joints and stone tile according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated surfaces, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.
- M. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.
- N. Installation - Floors - Thin-Set Methods:
 - 1. Over waterproofing membrane - ANSI A118.4, 118.5
- O. Installation - Wall Tile:
 - 1. Over cementitious tile backer board using dry set mortar with latex additive - ANSI A118.4 and ISO 13007.

- P. Installation – Salvaged stone tile:
 - 1. Using full mud set mortar - ANSI A118.4.

3.4 CLEANING

- A. Clean tile and grout surfaces.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

SECTION 095113

ACOUSTIC PANEL CEILINGS

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 acoustic panel ceilings as shown on the drawings and/or specified herein, including but not limited to, the following:
 - 1. Acoustical ceiling tile panel units - Type ACT-1.
 - 2. Exposed "T" suspension system, including hangers and inserts.
 - 3. Provisions for the installation of lighting fixtures, diffusers, grilles and similar items provided under other Sections.
 - 4. Cutting, drilling, scribing and fitting as required for electro-mechanical penetrations.
 - 5. Perimeter and column moldings, trim and accessories for acoustical ceilings.

1.3 RELATED SECTIONS

- A. Drywall ceilings - Section 092900.
- B. Diffusers, grilles and related frames - Division 23.
- C. Lighting fixtures - Division 26.

1.4 QUALITY ASSURANCE

- A. Codes and Standards: In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations published by the Ceilings and Interior Systems Contractor's Association.
- B. Qualifications of Installers
 - 1. The suspended ceiling subcontractor shall have a record of successful installation of similar ceilings acceptable to Architect and shall be currently approved by the manufacturer of the ceiling suspension system.
 - 2. For the actual fabrication and installation of all components of the system, use only personnel who are thoroughly trained and experienced in the skills required and completely familiar with the requirements established for this work.

- C. The work is subject to the following standards:
 - 1. ASTM C 635 "Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings," American Society for Testing and Materials.
 - 2. ASTM C 636 "Standard Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels," American Society for Testing and Materials.
- D. In addition to suspension system specified, provide seismic struts and seismic clips to meet seismic standards as required by prevailing Codes and Ordinances.

1.5 SUBMITTALS

- A. Shop Drawings: Submit completely dimensioned ceiling layouts for all areas where acoustical ceilings are required, showing:
 - 1. Any deviations from Architect's reflected ceiling plan layouts, especially lighting fixture and dimensions. Also indicate if any light fixtures will not fit into Architect's ceiling layout due to dimensional restrictions of field conditions.
 - 2. Direction and spacing of suspension members and location of hangers for carrying suspension members.
 - 3. Direction, sizes and types of acoustical units, showing suspension grid members, and starting point for each individual ceiling area.
 - 4. Moldings at perimeter of ceiling, at columns and elsewhere as required due to penetrations or exposure at edge of ceiling tiles.
 - 5. Location and direction of lights, air diffusers, air slots, and similar items in the ceiling plane.
 - 6. Details of construction and installation at all conditions.
 - 7. Materials, gauges, thickness and finishes.
- B. Samples and Product Literature: Submit the following samples and related manufacturer's descriptive literature.
 - 1. Twelve (12) inch long sample of each components of suspension systems, including moldings.
 - 2. Acoustical units — full size.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination or other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

1.7 PROJECT CONDITIONS

- A. Do not install acoustical ceilings until wet-work in space is completed and nominally dry, work above ceilings has been completed, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

1.8 COORDINATION

- A. Coordinate layout and installation of acoustical ceiling units and suspension system components with other work supported by or penetrating through ceilings, including light fixtures, HVAC equipment, fire suppression system components, and partition system.

1.9 EXTRA STOCK

- A. Extra Stock: Deliver stock of maintenance material to Owner. Furnish maintenance material matching products installed, packaged with protective covering for storage and identified with appropriate labels.
 - 1. Acoustical Ceiling Units: Furnish quantity of full-size units equal to 2.0% of amount installed.

PART 2 PRODUCTS

2.1 ACT-1 USG Mars ClimaPlus (86985 HRC) – 24" x 24"x 3/4" with edge option "G", or equivalent by Armstrong (Ultima beveled tegular) or Ecophon (Akuten FT White).

- A. Provide USG Donn Fineline 1/8 DXFF, 9/16" acoustical suspension system made by USG Interiors, Inc. or equivalent Armstrong Silhouette XL9/16: Bolt Slot 1/8" Reveal, or Ecophon (Combison Duo E)..
- B. The suspension system shall support the ceiling assembly shown on the drawings and specified herein, with a maximum deflection of 1/360 of the span, in accordance with ASTM C 635.
- C. Hanger for suspension system shall be 1" x 3/16", galvanized steel flats or 1/4" diameter galvanized pencil rods spaced 4'-0" o.c..
- D. Main carrying channels, to which suspension systems shall be fastened, shall be 1-1/2" cold rolled galvanized steel channel; spaced 4'-0" o.c.,
- E. Provide ceiling clips and inserts to receive hangers, type as recommended by suspension system manufacturer, sizes for pull-out resistance of not less than five (5) times the hanger design load, as indicated in ASTM C 635.
- F. Suspension systems shall conform to ASTM C 635, intermediate duty.
- G. Provide manufacturer's standard wall moldings with off-white baked enamel finish to match suspension systems. For circular penetrations of ceilings, provide edge moldings fabricated to diameter required to fit penetration exactly.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas where acoustic panel ceilings 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 have been corrected to permit proper installation of the layout.

3.2 PREPARATION

- A. Coordination: Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustical ceilings.
- B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half width units at borders, and comply with reflected ceiling plans.

3.3 INSTALLATION

- A. Codes and Standards: Install materials in accordance with manufacturer's printed instructions, and to comply with governing regulations and industry standards.
- B. Install suspension systems to comply with ASTM C 636, with wire hangers supported only from building structural members. Locate hangers not more than 6" from each end, leveling to tolerance of 1/8" in 12'-0".
- C. Space rod or flat iron (New York City) hangers not more than 4'-0" o.c. along main carrying channels; attach by clips or wire ties to building structure. Locate hangers not more than 6" from each end. Space main carrying channels 4'-0" o.c. Attach suspension system to carrying channels using clips or ties, leveling to a tolerance of 1/8" in 12'-0".
- D. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum which are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal force by bracing, reinforcing, countersplaying or other equally effective means.
- E. Install edge moldings at edges of each acoustical ceiling area, and at locations where edge of acoustical units would otherwise be exposed after completion of the work.
 - 1. Secure moldings to building construction by fastening through vertical leg. Space holes not more than 3" from each end and not more than sixteen (16) inches o.c. between end holes. Fasten tight against vertical surfaces.
 - 2. Level moldings with ceiling suspension system, to a level tolerance of 1/8" in 12'-0".
- F. Install acoustical units in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.
- G. Install hold-down clips in toilet areas, and in areas where required by governing regulations; space 2'-0" o.c. on all cross tees.
- H. Light fixtures or other ceiling apparatus shall not be supported from main beams or cross tees if their weight causes the total load to exceed the deflection capability of the ceiling suspension

system. In such cases the load shall be supported by supplemental hangers furnished and installed by this Section of work.

- I. Where fixture or ceiling apparatus installation causes eccentric loading on runners, provide stabilizer bars to prevent rotation.
- J. Installation shall be by use of torsion springs, field engaged into factory supplied spring retainers, and field installed in the correct location on the back of the panel. This panel assembly is then lifted into place, and the torsion springs are engaged into the factory supplied "butterflies" which have been field installed on the already suspended factory supplied grid. The panel is then gently lifted into place as the torsion springs take the load.
- K. All grid suspension hardware, hanger wires, rods, anchors, mouldings, etc., are to be supplied by the installing contractor.).

END OF SECTION

SECTION 095133

DIRECT ATTACHED METAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Metal ceiling panels.
 - 2. Suspension system.
 - 3. Wire hangers, clips, wall angle moldings and accessories.
- B. Related Sections:
 - 1. Section 095113 – Acoustic Panel Ceilings
 - 2. Section 092900 – Gypsum Assemblies
 - 3. Division 23 Heating, Ventilating, and Air Conditioning
 - 4. Division 26 Electrical Work

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
 - 2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
 - 3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
 - 4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
 - 5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
 - 6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
 - 7. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
 - 8. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
 - 9. ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint
 - 10. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems
 - 11. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum

- 12. ASTM E 1264 Classification for Acoustical Ceiling Products
- B. International Building Code
- C. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"
- D. NFPA 70 National Electrical Code
- E. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures
- F. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components
- G. International Code Council-Evaluation Services Report – Seismic Engineer Report
 - 1. ESR 1308 – Armstrong Suspension Systems
- H. International Association of Plumbing and Mechanical Officials – Seismic Engineer Report
 - 1. 0244 – Armstrong Single Span Suspension System
- I. California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.1 2010
- J. LEED - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each type of ceiling unit and suspension system required.
- B. Samples: Minimum 6 inch x 6 inch samples of specified metal panel; 8 inch long samples of suspension system if applicable.
- C. Installation Instructions: Submit manufacturer's installation instructions as referenced in Part 3, Installation.
- D. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.
- E. If the material supplied by the acoustical subcontractor does not have a Factory Mutual classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.5 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide metal ceiling and suspension components produced by a single manufacturer with resources adequate to deliver a product of consistent quality in terms of appearance and physical properties for all project scopes without risk of delay or interruption.
- B. Fire Performance Characteristics: Identify ceiling components with appropriate applicable, testing, including:
 - 1. Surface Burning Characteristics: As follows, tested per ASTM E84:
 - a. Flame Spread: 25 or less
- C. Coordination of Work: Coordinate ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver system components in manufacturer's original, unopened packages clearly labeled with the following information: item number and quantity, manufacturer's name and address, client name and address and site address.
- B. Store components in a fully enclosed dry space where they will be protected against damage from moisture, direct sunlight, surface contamination and other construction activities.
- C. Exercise care in handling components to prevent damage to the surfaces and edges and prevent distortion or other physical damage.

1.7 PROJECT CONDITIONS

- A. Space Enclosure:
 - 1. Building areas to receive ceilings shall be free of construction dust and debris. Products may be installed where temperatures are between 32°F (0°C) and 120°F (49°C) and in spaces before the building is enclosed, where HVAC systems are cycled or not operating. Such installations shall not be exposed to abnormal conditions, namely: chemical fumes, presence of standing water, or contact with moisture, as could result from condensations or building leaks. These products cannot be used in exterior applications unless the system has been specifically designed and approved for exterior application.

1.8 WARRANTY

- A. Ceiling System: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to:
 - 1. Ceiling Panels and Suspension System: Rust and manufacturing defects.
- B. Warranty Period:
 - 1. One (1) year from date of substantial completion.
 - 2. Grid: Ten (10) years from date of substantial completion.
- C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.9 MAINTENANCE

- A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
 - 1. Ceiling Units: Furnish quantity of full-size units equal to 2 percent of amount installed.
 - 2. Suspension System Components: Furnish quantity of each exposed suspension component equal to 1 percent of amount installed.
- B. Deliver extra stock to Owner's representative.

2.1 MANUFACTURERS

A. Ceiling Panels & Suspension Systems:

1. Basis of Design: Armstrong World Industries, Inc. (Solutions center) - MetalWorks Direct attached PEG system Item # (DS21560); or approved equal by USG (Illusions Metal Panel Ceiling System), or Rockfon (Spanair Clip-in Concealed Metal Panel).

2.2.0 METAL CEILINGS PLANKS

A. Ceiling Panels Type AMP-1:

1. Surface Texture: Smooth
2. Composition: Aluminum
3. Perforations: Standard perforation -White Fleece backing optional
4. Finish: (TBD)
5. Colors: Standard
6. Size: Custom- per Architectural drawings
7. Edge Profile: Butt Edge. PEG attached to panel edge in manufacturing
8. Noise Reduction Coefficient (NRC):
9. Flame Spread: ASTM E 1264; Class A per IBC.

SUSPENSION SYSTEMS

- A. Components: All main beams and cross tees shall be commercial quality hot dipped galvanized steel per ASTM A 653. Main beams and cross tees are double-web steel construction with 15/16-inch exposed flange design. Exposed surfaces chemically cleansed, galvanized capping pre-finished in baked polyester paint or anodized finish. Main beams and cross tees shall have a minimum 1-1/2-inch web height, peaked roof bulb design and staked-on clip end detail. Main beams and cross tees shall have rotary stitching.
1. Structural Classification: ASTM C 635, (Heavy Duty).
 2. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
 3. Acceptable Product: Prelude XL Exposed Tee Grid as manufactured by Armstrong World Industries, Inc.
- B. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
- C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least three times design load, but not less than 12 gauge.
- D. Edge Moldings and Trim: Metal of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runner.
- E. Accessories
1. Perimeter Trim

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Installer must inspect the area where the ceiling system is to be installed for conditions that may affect the work and notify the Contractor in writing of any unsatisfactory conditions before proceeding.
- B. All work above the ceiling system is to be satisfactorily completed prior to start of the ceiling installation.
- C. All unsatisfactory conditions potentially affecting the ceiling system are to be corrected prior to the start of ceiling installation.
- D. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out.

3.2 PREPARATION

- A. Examine construction and conditions under which system will be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

- A. Install the suspended ceiling system in accordance with the manufacturer's installation instructions, applicable industry standards, and the governing code of jurisdiction.
 - 1. MetalWorks Torsion Spring Installation (contact 877-276-7876 option 1,1,4 for assistance).
- B. Installed panels should be free from damaged edges or other defects detrimental to appearance and function.

3.4 FIELD QUALITY CONTROL

- A. Deflection of any grid components shall not exceed 1/360 of the span.

3.5 ADJUSTING AND CLEANING

Adjust ceiling components to provide a consistent finish and appearance in conformity with pre-established tolerances and requirements. All panels showing signs of damage, either in finish or in form are to be replaced. All exposed surfaces are to be cleaned of any dirt, grease, fingerprints and marks or other imperfections with cleaning materials recommended by the manufacturer.

END OF SECTION

SECTION 096500

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. Vinyl composition tile.
 - 2. Transition strips.
 - 3. Accessories.

1.3 RELATED SECTIONS

- A. Gypsum board partitions - Section 092900.
- B. Rubber Base – Section 096501
- C. Carpet Tile - Section 096813

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
 - 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 base and strips.
- C. Submit manufacturer's warranty as noted herein.

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 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.

1.8 WARRANTY

- A. Provide manufacturers 5-year limited warranty.

PART 2 - FIELD CONDITIONS

PRODUCTS

2.1 TILE

- A. Provide 12" x 12" x 1/8" thick vinyl composition tile conforming to ASTM F 1066, Class 2, in colors as selected by the Architect, equal to "Standard Excelon" made by Armstrong, or "Azrock VCT" made by Johnsonite Tarkett, or approved equal. Provide tile units with uniformly distributed color and pattern throughout the thickness of tile. Variations in shades and off-pattern matches between containers are not acceptable.
- B. Basis of Design: "Pewter" 5C908

2.2 BASE

- A. Refer to Section 096501

2.3 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 Strips: 1/8" thick, homogeneous vinyl or rubber composition, tapered or bullnose edge, color as selected by the Architect from manufacturer's standards.
- E. Finish
 - 1. Cleaner shall be equal to "Super Shine All" made by Hillyard Chemical Co., or approved equal.
 - 2. Wax shall be equal to "Super Hil-Brite" made by Hillyard Chemical Co., or approved equal.

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.
- I. Bases: 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.

3.5 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 two (2) coats of wax and buff using materials as specified herein.

END OF SECTION

SECTION 096501

RUBBER BASE

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 Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Resilient wall base and accessories
 - 2. Substrate preparation

1.3 RELATED SECTIONS

- A. Resilient Tile Flooring – Section 096500
- B. Carpet Tile – Section 096813

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide resilient flooring materials manufactured in the United States of America by a firm with a minimum of 10 years' experience with resilient flooring materials of type equivalent to those specified.
 - 1. Manufacturer's quality management system must have ISO 9001:2000 approval.
 - 2. Provide resilient flooring products, including wall base, accessories and subfloor preparation products from one manufacturer to ensure color matching and compatibility.
 - 3. Manufacturer shall be capable of providing technical training and technical field service representation.
- B. Installer qualifications: installer must be professional, licensed, insured and acceptable to manufacturer of resilient flooring materials. Project Managers or Field Supervisors

must be INSTALL (International Standards & Training Alliance) certified, CFI (Certified Floorcovering Installers) Certified and/or an FCICA (The Flooring Contractors Association) CIM (Certified Installation Manager) for the requirements of the project.

1.5 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures.
- B. Product Data: Submit manufacturer's technical data sheet, care & maintenance document, submittal and/or warranty for each material and accessory proposed.
- C. Samples: Submit representative samples of each product specified for verification.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in labeled packages. Store and handle in strict compliance with manufacturer's recommendations. Protect from damage due to weather, excessive temperatures, and construction operations.
- B. Deliver materials sufficiently in advance of installation to condition materials to the required temperature for 48-hours prior to installation.

1.7 PROJECT CONDITIONS

- A. Maintain temperature and humidity at service levels or the ambient temperature must remain steady ($\pm 10^{\circ}\text{F}$) and be between 65°F and 85°F for at least 48-hours prior to, during and after installation. The ambient relative humidity is recommended to be between 40% and 65% RH; avoid dew point conditions.

1.8 WARRANTY

- A. Provide manufacturer's standard limited commercial warranty to cover manufacturing defects.

1.9 REFERENCES (INDUSTRY STANDARDS):

- A. ASTM International (ASTM):
 - 1. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials
 - 2. ASTM E648 – Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source

3. ASTM E662 – Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
 4. ASTM F710 – Standard Practice for Preparing Concrete to Receive Resilient Flooring
 5. ASTM F1861 – Standard Specification for Resilient Wall Base
 6. ASTM F386 – Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces
- B. Canadian ULC Standards (Can/ULC):
1. CAN/ULC-S102.2 – Surface Burning Characteristics
- C. National Fire Protection Association (NFPA):
1. NFPA 253 – Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source
 2. NFPA 258 – Test Method for Specific Density of Smoke Generated by Solid Materials
 3. NFPA 255 – Test Method of Test of Surface Burning Characteristics of Building Materials

PART 2 - FIELD CONDITIONS

PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

- A. Basis-of-Design: Allstate, or approved equal by Johnsonite or Roppe Construction.
1. RB-1: Allstate Rubber color #A35 – dark bronze
 2. RB-2: Allstate Rubber color #A90 – light gray

2.2 RESILIENT WALL BASE

- A. Rubber Wall Base:
1. Product Name: Pinnacles
 2. Material Specification: ASTM F1861

- a. Type TS – rubber, vulcanized thermoset
 - b. Group 1 – solid, (homogenous)
 - c. Style A – Straight, Style B – Cove
-
3. Material Height: 4" (101.6 mm)
 4. Material Thickness: ASTM F386 1/8" (3.2 mm)
 5. Material Length: 4'-0" sections and 120' coils
 6. Limited Warranty: 1 year, Manufacturing Only
 7. Material & Composition: 100% vulcanized homogenous rubber compound comprised of a premium blend & SBR rubber materials.
 8. Color: As selected by architects from standard colors
 9. Surface Burning: ASTM E84/NFPA 255 Class B
 10. Flammability/Critical Radiant Flux: ASTM E648/NFPA 253
 - a. Class 1 (>0.45 Watts per sq. cm.), .082 W/cm²
 11. Smoke Density: ASTM E662/NFPA 258
 - a. Passes (>450), 157 (flaming) – 197 (non-flaming)
 12. Surface Burning: CAN/ULC-S102.2
 - a. FSR 50, SDS 175
 13. Substrate Preparation: Per ASTM F710 and Roppe Technical Data Sheet

2.3 INSTALLATION PRODUCTS:

A. Acrylic Adhesives

1. Product Name: WB-600

Product Description: Acrylic Wall Base Adhesive

Product Usage: For standard, interior wall base installation over porous substrates only.

2. Product Name: AW-510

Product Description: Acrylic Wet-Set Adhesive

Product Usage: For interior wall base installations that require a more aggressive bond over porous substrates only

3. Product Name: C-630

Product Description: Water-Based Contact Adhesive

Product Usage: For interior wall base installations that require a more aggressive bond over porous or non-porous substrates.

2.4 MAINTENANCE PRODUCTS:

A. Cleaners

1. Product Name: NC-900

Product Description: All-Purpose pH Neutral Cleaner

Product Usage: For initial, daily or routine maintenance and spot cleaning.

2. Product Name: PR-930

Product Description: Performance Finish Remover

Product Usage: For removal of finish that has been accidentally or erroneously applied to material.

PART 3 EXECUTION

3.1 GENERAL

A. General Contractor Responsibilities:

1. Supply a safe, climate controlled building and subfloor as detailed in Roppe Technical Data Sheets.
2. Ensure substrate meets the requirements of ASTM F710, Roppe Technical Data Sheets and Excelsior Technical Data Sheets.
3. Ensure horizontal concrete substrates have been tested per ASTM F2170 and/or ASTM F1869 to confirm that concrete relative humidity and/or moisture vapor emission rates are within tolerance of the approved adhesive.

4. Confirm the porosity of all substrates to ensure proper adhesive usage.
5. Provide a secure storage area that is maintained permanently or temporarily at normal operating temperature and humidity conditions (except walk in freezers or similar) between 65° F and 85° F and between 40% and 65% relative humidity, for at least 48-hours prior to and during the application of the flooring, so the flooring contractor can acclimate the flooring materials per manufacturer's instructions.
6. Provide an installation area that is weather tight and maintained either permanently or temporarily at ambient service temperature and humidity (except walk in freezers or similar), normal operating temperature and humidity conditions (except walk in freezers or similar) between 65° F and 85° F and between 40% and 65% relative humidity, for at least 48-hours prior to and during the application of the flooring per the manufacturer's instructions.
7. Ensure areas with direct prolonged exposure to sunlight are protected with protective UVA/UVB restrictive coatings or films.
8. Areas of the flooring that are subject to direct sunlight through doors or windows should have them covered using blinds, curtains, cardboard or similar for the time of the installation and 72-hours after the installation to allow the adhesive to cure. Note: These areas should be installed using wet adhesives only.
9. Protect newly installed flooring with construction grade paper or protective boards, such as Masonite or Ram Board, to prevent flooring damage, especially by other trades. Limit usage and foot traffic according to the adhesive's requirements. When moving appliances or heavy furniture, protect flooring from scuffing and tearing using temporary floor protection.
10. Ensure furniture casters are made of a soft material and have a contact point of at least 1" in width to limit indentation and flooring damage. All rolling chairs or seating must have a resilient flooring chair pad installed over the finished floor to protect floor covering. All fixed furniture legs must have permanent felt or soft rubber floor protectors installed on all contact points to reduce indentation. Floor protectors must have a flat contact point of at least 1" in width and must cover the entire bottom surface of the furniture leg.
11. Conduct initial maintenance prior to final usage per the Roppe Care & Maintenance Documents. Do not conduct initial maintenance until adhesive has cured per the adhesive technical data.

B. Flooring Contractor Responsibilities:

1. Provide trained installers that are professional, licensed, insured and acceptable to manufacturer of resilient flooring materials.
2. Ensure installers or installation teams meet one of the following requirements:
 - a. Have completed INSTALL (International Standards & Training Alliance) or CFI (Certified Floorcovering Installers) training programs and/or are certified by INSTALL or CFI.
 - b. Are being supervised by Project Managers or Field Supervisors that are INSTALL (International Standards & Training Alliance) certified, CFI (Certified Floorcovering Installers) Certified and/or an FCICA (The Flooring Contractors Association) CIM (Certified Installation Manager).
3. Follow all requirements in the appropriate Roppe and/or Excelsior Technical Data Sheets, Care & Maintenance Documents, Warranties and other technical documents or instructions.

3.2 EXAMINATION

- A. General: Follow guidelines laid out in Division 01, Section 017100 – Examination and Preparation, as well as Section 014300 – Quality Assurance.
- B. Verification of Conditions: Inspect all substrates to ensure they are clean, smooth, permanently dry, flat, and structurally sound.

3.3 SUBSTRATE PREPARATION

- A. General: Follow guidelines laid out in Division 01, Section 017100 – Examination and preparation. All work required to ensure substrate or subfloor meets manufacturing guidelines are the responsibility of the general contractor.
- B. Preparation: Ensure substrate meets the requirements of ASTM F710, Roppe Technical Data Sheets and Excelsior Technical Data Sheets. Substrates must be free of visible water or moisture, dust, sealers, paint, sweeping compounds, curing compounds, residual adhesives and adhesive removers, concrete hardeners or densifiers, solvents, wax, oil, grease, asphalt, visible alkaline salts or excessive efflorescence, mold, mildew and any other extraneous coating, film, material or foreign matter.

3.4 INSTALLATION

- A. General: Follow all relevant guidelines detailed in Division 01, as well as flooring and adhesive manufacturer's technical data sheets.
- B. Interface With Other Work: If caulking or sealing is required after installation, please contact the manufacturer for a suitable matching caulk.

3.5 CLEANING & MAINTENANCE

- A. General: Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.
- B. Initial Maintenance: Conduct initial maintenance per the manufacturer's Care & Maintenance documents.

3.6 CLOSEOUT ACTIVITIES

- A. General: Follow all federal, state and local requirements and Division 01 Section 017600 – Protecting Installed Construction and Section 017800 – Closeout Submittal requirements for these activities.
- B. Protection: Protect newly installed material with construction grade paper or protective boards, such as Masonite or Ram Board, to protect material from damage by other trades. Limit usage and foot traffic according to the adhesive's requirements. When moving appliances or heavy furniture, protect wall base from scuffing and tearing using temporary floor protection.

END OF SECTION

SECTION 096813

CARPET TILE

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 carpet tile as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Carpet tile.
 - 2. Adhesive.

1.3 RELATED SECTIONS

- A. Concrete sub-floor – Section 033000.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Firm with not less than five (5) years of experience in installation of commercial carpeting of type, quantity, and installation methods similar to work of this Section.
- 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.
- C. Carpet used on Project must be from same dye lot for each carpet type.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's complete technical product data for each type of carpet, cushion and accessory item required.
- B. Samples: Submit full size samples of carpet tile and six (6) inches long samples of each type exposed edge stripping.
- C. Certification: Submit manufacturer's certification stating that carpet materials furnished comply with specified requirements.
 - 1. Include listing of mill register numbers for carpet furnished.
 - 2. Include supporting certified laboratory test data indicating that carpet meets or exceeds specified test requirements.

- D. Maintenance Data: Submit manufacturer's printed maintenance recommendations, including methods and frequency recommended for maintaining carpet in optimum conditions under anticipated traffic and use conditions.

1.6 EXTRA STOCK

- A. Produce and deliver to project at least five (5) percent overrun on calculated yardage. Provide required overrun exclusive of carpet needed for proper installation, waste and usable scraps.

1.7 PRODUCT DELIVERY AND STORAGE

- A. Deliver carpeting 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.

1.8 WARRANTY

- A. Provide special project warranty, signed by Contractor and Manufacturer (Carpet Mill), agreeing to repair or replace defective materials and workmanship of carpeting work during two (2) year warranty period following substantial completion. Attach copies of product warranty.

PART 2 PRODUCTS

2.1 CARPET TILE (CPT)

- A. Manufacturer: Basis of Design Interface; or approved equal
- B. Product:
 - 1. CPT-1: Interface - Style #128200AK00, Color #105364 Natural Loom (mid gray)
 - 2. CPT-2: Interface - Style #139490250 'Chasing Pavement', Pattern #M1273 (dark gray & yellow):
 - 3. CPT-3: Interface - Style #128220AK0 WW895, Pattern #M1179 (multicolor)

2.2 ACCESSORIES

- A. Adhesive for Carpet Tile: Provide release type adhesive as recommended by the carpet tile manufacturer for use with carpet tile specified. Provide adhesive which complies with flame spread rating required for the carpet installation.
- B. Miscellaneous Materials: Provide the types of adhesives and tape, and other accessory items recommended by the carpet manufacturer and Installer for the conditions of installation and use.
- 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. Assume 600sf of flashing patching required in the project.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where carpet 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 PRE-INSTALLATION REQUIREMENTS

- A. Floor shall be clean and free of cracks and protrusions. Any gaps or cracks more than 1/16" wide to be filled in with latex leveling compound. 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 hrs. prior to installation; and 48 hrs. after carpet is installed.
- C. Conduct a moisture test. The presence of moisture in the concrete floor will interfere with the curing and subsequent performance of the adhesive. Conduct the test as follows:
 - 1. Drive a concrete nail a half inch into the floor. Then remove the nail.
 - 2. Place a small amount of anhydrous calcium chloride or calcium sulphate crystals over the hole.
 - 3. Cover the crystals and the hole with a piece of flat glass and seal the edges with waterproof tape or putty. Since concrete pourings vary, repeat the test every 1500 sq. ft.
 - 4. Leave in place 72 hrs. Any color change in the crystals indicates the presence of moisture. Do not apply carpet until slab is free of moisture and meets with approval of carpet adhesive manufacturer.
- D. 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. Maintain direction of pattern and texture, including lay of pile.
 - 2. Adhere all tiles with a full spread of adhesive. Dry-fit cut tiles and apply adhesive to tile back after tile has been cut.
 - 3. Tiles shall be installed in a monolithic corner to corner manner following arrows printed on back of each tile indicating pile direction. Tiles shall be installed to achieve patterns as directed by the Architect.
 - 4. Vinyl reducer strips shall be used along any necessary open edges so as to maintain the fixed perimeter.

3.4 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.

3.5 PROTECTION

- A. In all areas, provide a temporary non-staining paper pathway in the direction of traffic.

END OF SECTION

SECTION 097726

TACKABLE WALL SURFACING

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 tackable wall surfacing as shown on the drawings and/or specified herein.

1.3 RELATED SECTIONS

- A. Gypsum wallboard - Section 092500.

1.4 QUALITY ASSURANCE

- A. Qualifications of Installers: For actual cutting and installation of wall surfacing, use only thoroughly trained and experienced installers completely familiar with the installation recommendations of the manufacturer of the wall surfacing used and completely familiar with the requirements of this work.
- B. Manufacturer's Recommendations: The installation recommendations of the manufacturer of the wall surfacing material used, when approved by the Architect, shall be the basis for acceptance or rejection of actual installation methods used in this work.
- C. Fire Performance Characteristics: Comply with the fire performance characteristics indicated below. Identify components with markings from testing and inspection organization.
 - 1. ASTM E 84 (Fuel Contribution): Class B.
 - 2. NFPA 225 (Critical Radiant Flux): Class II.
- D. Mock-Up: Prepare mock-ups for the Architect's review and to establish requirements for seaming and finish trim.

1. Correct areas, modify method of application and adjust finish texture as directed by the Architect to comply with specified requirements.
2. Maintain mock-ups accessible to serve as a standard of quality for this Section.
3. Install sample panel of each type wall covering specified.
4. Install panels in areas designated by the Architect.

1.5 SUBMITTALS

- A. Samples: Before any wall surfacing is delivered to the job site, submit to the Architect samples of the full range of colors of bulletin board material available from the selected manufacturer in the quality and type specified. Samples shall be a min. 6" x 9" in size.
- B. Manufacturer's Recommendations: Accompanying the samples, submit to the Architect copies of the manufacturer's current installation recommendations for the material proposed to be furnished and installed under this Section.
- C. A Certificate of Compliance shall be furnished indicating conformance to the specification requirements. This requirement may be waived if wall surfacing material and adhesive packages and containers delivered to the job carry labels indicating weight of materials and fire hazard classification.

1.6 MAINTENANCE INSTRUCTION

- A. Furnish the Owner with a copy of the manufacturer's maintenance instructions. These instructions shall contain recommended cleaning materials, application methods, and precautions to be followed in the use of cleaning materials which may be detrimental to the surface if improperly applied.

1.7 EXTRA MATERIALS

- A. Deliver to the Owner extra materials from the same production run as the installed products. Package with protective materials. Provide minimum 5% of installed amount.

1.8 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver and store all wall surfacing material 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.

1.9 ENVIRONMENTAL CONDITIONS

- A. Wall surfacing 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 wall surfacing shall be a constant temperature of 70 deg. F. measured at base elevation and shall be maintained for 72 hours before, during, and 48 hours after the application.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Tackable Wall Surfacing: Provide "Bulletin Board UM" by Forbo (Basis of Design) or approved equal by Claridge or Koroseal.
 - 1. Provide resilient homogeneous, tackable surface material consisting of linseed oils, granulated cork, resin binders, mixed and calandered onto a natural burlap backing equal to Forbo Industries or approved equal. Uni-color shall extend throughout thickness of material; product shall contain no harmful by-products or carcinogens. Product shall conform to the following characteristics:
 - a. Width: 48".
 - b. Gauge: 1/8".
 - c. Length: 90 lineal feet approx.
 - d. Backing: Burlap.
 - e. Material Flexibility: Will not crack or break around a 2-3/4" diameter cylinder.
 - f. Color: 2206 Oyster Shell (gray) with matching colored caulk
 - 2. Adhesive: Provide "Forbo L910" adhesive as recommended by manufacturer.
 - 3. Metal Edge Trim: 1/8" extruded aluminum with clear anodized finish or as indicated on the drawings.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where the wall surfacing 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. Cut sheets of wall surfacing materials with required length, including 2" to 3" overlap, preferably 24 hours prior to installation. Lay sheets flat and allow to acclimatize at a minimum temperature of 68 deg. F. Back roll sheets once in reverse direction to release roll stretch.
- B. Cutting to Size
 - 1. Cut a sheet from the roll of Bulletin Board, allowing some length of overlap.
 - 2. Remove factory edge from both sides with a Forbo Seam and Strip Cutter. A straight edge, utility knife and hooked blade knife may also be used to trim the factory edge.
 - 3. Trim off a minimum of 1/2". With utility knife, score material about 1/3 the material thickness. Then with the hooked blade knife, cut along the score line, holding the knife at an angle, to slightly undercut the edge.
 - 4. Cut straight along the top edge or direct scribe. The bottom edge shall be cut to size by direct scribing during installation.
 - 5. Draw a perpendicular pencil line on the wall for your starting point.
- C. Pressing Into Adhesive
 - 1. Press the sheet of Bulletin Board into the fresh adhesive, starting with the top edge and the side along the perpendicular pencil line.
 - 2. Work from the top downwards, first widthwise, then lengthwise.
 - 3. Roll firmly through the width then the length with a hand roller to insure proper transfer of adhesive and to remove all air bubbles.
 - 4. Remove adhesive residue immediately with a damp cloth. Mineral spirits may be used to remove dried adhesive.

5. The first sheet shall now be fully cut in, adhered and rolled.
- D. Seaming with Subsequent Sheets
1. Cut the subsequent sheet to required length, including 2" to 3" overlap. Note: Do Not Reverse Sheet. Install all Linoleum Sheets in same direction.
 2. Overlap at seam shall be a minimum of 1/2".
 3. Using the Forbo Seam and Strip Cutter, trim the factory edge on opposite side to prepare for the next seam.
 4. Draw a pencil line on the wall where next seam line will fall.
 5. Spread the Forbo Adhesive with proper notched trowel.
 6. Spread from the edge of the first sheet up to the pencil line at the seam edge of the second sheet.
 7. If necessary, apply 10" to 12" of contact adhesive or acrylic dispersion to the upper part of the wall and to the back of the Bulletin Board, to prevent the sheet from sliding down along the fresh adhesive.
 8. Immediately after material has been laid into wet adhesive, underscribe the seam.
- E. Remove switchplates, wall plates, and surface-mounted fixtures, where wall surfacing is to be applied.
- F. Prime and seal substrates in accordance with the wall surfacing manufacturer's recommendations for the type of substrate materials to be covered.
- G. Surfaces to receive wall surfacing shall be free from grit, loose particles and surface irregularities and shall meet the min. requirements established by the wall surfacing manufacturer. Fill all cracks and holes in gypsum board with patching compound and sandpaper smooth.
- H. Provide tarpaulins, drop cloths and other suitable covers to protect adjacent and underlying surfaces with are likely to be stained, spotted or otherwise marked by adhesive and application operations.
- 3.3 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.

3.4 CLEAN-UP

- A. Any hardware, accessories, plates, etc., which are removed during wall surfacing 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.

END OF SECTION

SECTION 098129

SPRAYED ACOUSTIC CEILING 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. The Work of this Section includes all labor, materials, equipment and services necessary to complete the acoustic sprayed material as shown on the drawings and/or specified herein, including but not necessarily limited to the following:
 - 1. Sprayed acoustic ceiling coating on the existing structural deck.

1.3 QUALITY ASSURANCE

- A. Qualifications of Installers: An entity that employs installers and supervisors who are trained and approved by the manufacturer.
- B. Installation Methods: Monolithic spray applied coating

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data and installation instructions for each material and component part include plans or schedules or both indicating the extent of sprayed area, color and texture.
- B. Samples: Submit a 6"x6" sample of custom color and texture.

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.

PART 2 PRODUCTS

A. SPRAY APPLIED ACOUSTIC CEILING COATING

1. Basis of Design: SonaSpray 'K-13' or approved equal. Apply 3/4" thick.
 - a. SPRAY-1: White
 - b. SPRAY-2: Gray
2. ASTM E 84 Class 1, Class A rated

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where spray applied ceiling coating will be applied. Pretreat as indicated below.

3.2 INSTALLATION

- A. Properly prepare substrate prior to installation. Patch all holes, divots, spalls to avoid telegraphing. Assume 200sf of patching.
- B. Surface is to be expected prior to installation to determine if additional pretreatment is required.
- C. Contractor to remove all miscellaneous fasteners, hooks, hangers and rods, etc. abandoned on the ceiling/structure above.
- D. Contractor to coordinate sequencing of adjacent work including hanging the open panel ceiling blades, lighting fixtures, sprinklers and HVAC systems, etc.

3.3 ADJUST AND CLEAN

- A. Follow manufacturer guidelines for cleaning and protection

END OF SECTION

SECTION 098411

WALL-MOUNTED ACOUSTIC PANELS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section including the following.
 - 1. Wall-mounted acoustic panels.
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
 - 1. Section 061000 - Rough Carpentry; concealed blocking and supports.

1.2 SUBMITTALS

- A. Product Data: Submit for each product indicating materials, dimensions, profiles, textures and colors. Include installation instructions.
- B. Shop Drawings: Submit shop drawings indicating plans, elevations, details of construction, and relationship with adjacent construction.
- C. Verification Samples: Submit representative sample of felt in color specified.

1.3 QUALITY ASSURANCE

- A. Manufacturer: Minimum of 2 years manufacturing similar products.
- B. Installer: Minimum of 2 years installing similar products.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Storage and Handling: Comply with manufacturer's recommendations for storage and handling. Protect from weather damage.

1.5 WARRANTY

- A. Warranty: Provide manufacturer's standard limited warranty against defects in manufacturing.

PART 2 - PRODUCTS

2.1 WALL-MOUNTED ACOUSTIC PANELS

A. Tile System: 100% Wool Design Felt and Cork Composite Backing.

1. Basis-of-Design: Ribsy by FilzFelt, www.filzfelt.com/ribsy; or approved equal
2. Materials:
 - a. Felt: 100% Wool Design Felt, 100 percent biodegradable.
 - b. Substrate: Cork composite, 3% pre-consumer recycled content.
 - c. Contains no formaldehyde, chemical irritants, or harmful substances.
 - d. VOC free.
3. Tile Thickness: 5/8 in
4. Tile Size: 2'-0" x 6"
5. Color: Aubergine #437
6. Trim: None
7. Mounting Method: Wallcovering adhesive.
8. Properties:
 - a. NRC (ASTM C423): 0.35.
 - b. SAA (ASTM C423): 0.37.
 - c. Colorfastness to Light Class: 4–5 (40 hours).
 - d. Colorfastness to Crocking: Class 3–4 (wet), Class 4–5 (dry).
 - e. Environmental: FSC (Forest Stewardship Council) Certified (Cork Composite), Oeko-Tex Standard 100 Certified Product Class II (100% Wool Design Felt).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine existing conditions to determine that they are suitable for installation. Proceed with installation only when unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Install units in accordance with manufacturer's instructions, approved submittals, and in proper relationship to adjacent construction.

3.3 ADJUSTING AND CLEANING

- A. Adjust units for proper position, uniform appearance, and operation.
- B. Clean exposed and semi-exposed surfaces using materials acceptable to manufacturer.

END OF SECTION

SECTION 099000

PAINTING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Prime painting unprimed surfaces to be painted under this Section.
2. 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.
3. Painting all ferrous metal (except stainless steel) exposed to view.
4. Painting all galvanized ferrous metals exposed to view.
5. Painting interior concrete block exposed to view.
6. Painting gypsum drywall exposed to view.
7. Painting plaster surfaces.
8. 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.
9. Painting pipes, pipe coverings, conduit, ducts, insulation, hangers, supports and other mechanical and electrical items and equipment exposed to view.
10. Painting firestopping following inspection and acceptance.
11. Painting surfaces above, behind or below grilles, gratings, diffusers, louvers, lighting fixtures, and the like, which are exposed to view through these items.
12. Incidental painting and touching up as required to produce proper finish for painted surfaces, including touching up of factory finished items.
13. 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. Related sections

1. Shop 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.
2. 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.
 - a. Plumbing - Division 22.
 - b. Heating, ventilation and air conditioning – Division 23.
3. Wallcovering - Section 097200.
4. Color Coding of Mechanical Piping and Electrical Conduits – Divisions 22 and 26.
 - a. 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.

1.2 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. Factory-finished acoustical tile.
- D. Non-ferrous metals, except for items specified and/or indicated to be painted.
- E. Finished hardware, excepting hardware that is factory primed.
- F. Surfaces not to be painted shall be left completely free of droppings and accidentally applied materials resulting from the work of this Section.

1.3 QUALITY ASSURANCE

- A. Job Mock-Up
 1. 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.

2. These applications when approved will establish the quality and workmanship for the work of this Section.
 3. 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.

1.4 SUBMITTALS

- A. Materials List
1. 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.
 2. 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
1. Accompanying the materials list, submit to the Architect copies of the full range of colors available in each of the proposed products.
 2. 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.

1.5 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
 - 1. 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.
 - 2. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste.
 - 3. 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.

1.6 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.

1.7 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, Akzo Nobel 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 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 COLOR SELECTIONS

PT-1: Benjamin Moore "Simply White" OC-117

PT-2: Benjamin Moore "Imperial Yellow" 314

PT-3: Benjamin Moore "Dill Pickle" 2147-40

PT-4: Benjamin Moore "Orchards" 329

PT-5: Benjamin Moore "Wish" AF-680

PT-6: Sherwin Williams "Nasturtium" SW 6899

2.5 SCHEDULE OF FINISHES

- A. Exterior Galvanized Ferrous Metal

Primer Moore IMC Acrylic Metal Primer (M04)
 Akzo Devflex 4020 FF DTM Primer/Flat Finish
 Sherwin-Williams Galvite HS Primer, B50WZ30
First Coat: Moore Urethane Alkyd Gloss Enamel (Z22)
 Akzo Devflex 4216 High Performance WB Acrylic S/G
 Sherwin-Williams Industrial Enamel HS, B54Z-400
Second Coat: Same as recommended first coat.

B. High Performance Coating On Exterior Galvanized Ferrous Metals

First Coat: "27 Typoxy" or "N69 Epoxoline II" by Tnemec; "Intergard 345" by International Protective Coatings; "Carboguard 893 SG" or "Carboguard 888" by Carboline; "Devran 203 WB Epoxy Primer" by Akzo; Epoxy Mastic Coating V 160 Series by Cortech/Moore or "Recoatable Epoxy Primer 867-45" by Sherwin Williams.

Second Coat: "V73 Endura Shield" or "1074/1075" by Tnemec; "Interthane 870UHS" or "990 UHS" by International Protective Coatings; "Carbothane 133 LH" by Carboline; "Devthane 379UH Aliphatic Urethane" by Akzo; Acrylic Aliphatic Urethane V 500 (Gloss) or V 510 (Semi-Gloss) by Corotech/Moore or "Hi-Solids Urethane B65-300/350" by Sherwin Williams.

C. High Performance Coating On Exterior Non-Galvanized Ferrous Metals

Prime Coat: "Tneme-Zinc 90/97" by Tnemec; "Interzinc 52" or "315" by International Protective Coatings; "Carbozinc 859, Class B" by Carboline; "Cathacoat 302V Reinforced Inorganic Zinc Primer" by Akzo; Organic Zinc Rich Primer V 170 by Corotech/Moore or "Zinc Clad II Plus Inorganic Zinc Rich Coating B69V212" by Sherwin Williams.

Second Coat: "27 Typoxy" or "N69 Epoxoline II" by Tnemec; "Intergard 345" by International Protective Coatings; "Carboguard 893 SG" or "Carboguard 888" by Carboline; "Bar-Rust 231V Multi-Purpose Epoxy Mastic" by Akzo; Epoxy Mastic Coating V 160 Series by Corotech/Moore or "Macropoxy 646 I.C. Epoxy B58-600" by Sherwin Williams.

Third Coat: "V73 Endura Shield" or "1074/1075" by Tnemec; "Interthane 870UHS" or "990 UHS" by International Protective Coatings; "Carbothane 133 LH" by Carboline; "Devthane 379 UH Aliphatic Urethane" by Akzo; Acrylic Aliphatic Urethane V 500 (Gloss) or V 510 (Semi-Gloss) by Corotech/Moore or "Hi-Solids Polyurethane B65-300/350" by Sherwin Williams.

D. Interior Ferrous Metal

Satin Finish/Latex

- Primer: 1 coat Moore Alkyd Metal Primer (Z06)
- 1 coat Akzo Devflex 4020 PF DTM Prime/Flat Finish or touch-up
shop primer
- 1 coat Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer
B66-310
- First Coat: 1 coat Moore Super Spec-HP DTM Acrylic Low Luster P25
- 1 coat Akzo: Glidden Professional Diamond 350 Acrylic Eggshell
GP1403
- 1 coat S-W Pro-Classic Waterborne Acrylic Satin, B20
- Second Coat: 1 coat Moore Super Spec-HP DTM Acrylic Low Luster P25
- 1 coat Akzo: Glidden Professional Diamond 350 Acrylic Eggshell
GP1403
- 1 coat S-W Pro-Classic Waterborne Acrylic Satin, B20
- a. Total DFT not less than: 3.9 mils

Semi-Gloss Finish/Latex

- Primer: 1 coat Moore Super Spec-HP Acrylic Metal Primer (P04)
- 1 coat Akzo Devflex 4020 PF DTM Primer/Flat Finish or touch-up
shop primer.
- 1 coat Sherwin-Williams, Pro Industrial Pro-Cryl Universal Primer
B66-310
- First Coat: 1 coat Moore Super Spec HP DTM Acrylic Semi-Gloss (P29)
- 1 coat Akzo: Glidden Professional Diamond 350 Acrylic S/G 6P1407
- 1 coat S-W Pro-Classic Waterborne Acrylic Semi-Gloss, B31
- Second Coat: 1 coat Moore Super Spec HP DTM Acrylic Semi-Gloss (P29)

1 coat Akzo: Glidden Professional Diamond 350 Acrylic S/G 6P1407

1 coat S-W Pro-Classic Waterborne Acrylic Semi-Gloss, B31

a. Total DFT not less than: 4.0 mils

E. Interior Concrete Block

Flat Finish/Vinyl Acrylic Latex over Filler

Block Filler: 1 coat Moore Super Spec Masonry Int./Ext. High Build Block Filler
(206)

1 coat Akzo Glidden Professional Concrete Coatings Block Filler GP
3010-1200

1 coat S-W Preprite Block Filler, B25W25

First Coat: 1 coat Moore Ultra Spec 500 Interior Flat Latex (N536)
1 coat Akzo Glidden Professional Diamond 350 Flat GP 1201
1 coat S-W Promar 200 "O" VOC Interior Latex Flat, B30-2600

Second Coat: 1 coat Moore Ultra Spec 500 Interior Flat Latex (N536)
1 coat Akzo Glidden Professional Diamond 350 Flat GP 1201
1 coat S-W Promar 200 "O" VOC Interior Latex Flat, B30-2600

a. Total DFT not less than: 10.7 mils

Eggshell Finish/Vinyl Acrylic Latex Over Filler

Block Filler: 1 coat Moore Super Spec Masonry Int./Ext. High Build Block Filler
(206)

1 coat Akzo Glidden Professional Concrete Coatings Block Filler GP
3010-1200

1 coat S-W Preprite Block Filler, B25W25

First Coat: 1 coat Moore Ultra Spec 500 Interior Latex Eggshell (N538)
1 coat Akzo Glidden Professional Diamond 350 Acrylic Eggshell
6P1403

1 coat S-W Promar 200 "O" VOC Interior Latex Eggshell, B20-2600

Second Coat: 1 coat Moore Ultra Spec 500 Interior Latex Eggshell (N538)
1 coat Akzo Glidden Professional Diamond 350 Acrylic Eggshell
6P1403

1 coat S-W Promar 200 "O" VOC Interior Latex Eggshell, B30-2600

a. Total DFT not less than: 10.9 mils

Semi-Gloss Finish/Vinyl Acrylic Latex over Filler

Block Filler: 1 coat Moore Super Spec Masonry Int./Ext. High Build Block Filler
(206)

1 coat Akzo Glidden Professional Concrete Coatings Block Filler GP
3010-1200

1 coat S-W Preprite Block Filler, B25W25

- First Coat: 1 coat Moore Ultra Spec 500 Interior Latex Gloss (N540)
1 coat Akzo Glidden Professional Diamond 350 Acrylic S/G GP 1407
1 coat S-W Promar 200 "O" VOC Interior Latex S. Gloss, B31-2600
- Second Coat: 1 coat Moore Ultra Spec 500 Interior Latex Gloss (N540)
1 coat Akzo Glidden Professional Diamond 350 Acrylic S/G GP 1407
1 coat S-W Promar 200 "O" VOC Interior Latex S. Gloss, B31-2600
- a. Total DFT not less than: 10.7 mils

F. Interior Drywall and Plaster

Flat Finish/Vinyl Acrylic Latex

- Primer: 1 coat Moore Ultra Spec 500 Interior Latex Primer (N534)
1 coat Akzo Glidden Professional Gripper GP 3210
1 coat S-W Promar 200 Interior Latex Primer
- First Coat: 1 coat Moore Ultra Spec 500 Latex Flat (N536)
1 coat Akzo Glidden Professional Diamond 350 Flat GP 1201
1 coat S-W Promar 200 "O" VOC Interior Latex Flat, B30-2600
- Second Coat: 1 coat Moore Ultra Spec 500 Latex Flat (N536)
1 coat Akzo Glidden Professional Diamond 350 Flat GP 1201
1 coat S-W Promar 200 "O" VOC Interior Latex Flat, B30-2600
- a. Total DFT not less than: 3.6 mils

Eggshell Finish/Vinyl Acrylic Latex

- Primer: 1 coat Moore Ultra Spec 500 Interior Latex Primer (N534)
1 coat Akzo Glidden Professional Gripper GP 3210
1 coat S-W Promar 200 Interior Latex Primer,
- First Coat: 1 coat Moore Ultra Spec 500 Interior Latex Eggshell (N538)
1 coat Akzo Glidden Professional Diamond 350 Acrylic Eggshell GP
1403
1 coat S-W Promar 200 "O" VOC Interior Latex Egg-Shell, B20-2600
- Second Coat: 1 coat Moore Ultra Spec 500 Interior Latex Eggshell (N538)
1 coat Akzo Glidden Professional Diamond 350 Acrylic Eggshell GP
1403
1 coat S-W Promar 200 "O" VOC Interior Latex Egg-Shell B20-2600
- a. Total DFT not less than: 3.8 mils

G. Primer for Fiberglass Faced Drywall:

- 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."
1 coat Benjamin Moore 046 Fresh Start Acrylic Superior Primer

H. Interior Drywall to Receive Wallcovering

Primer: 1 coat "Shield Z Mold and Mildew Proof Commercial Wallcovering
Primer" made by Zinsser
1 coat Moore One Prep Wallpaper Primer WP-3001 by Insl-X.
1 coat Pre-Wallcovering Primer B28W8900 by Sherwin Williams

I. Interior Painted Wood:

Satin Finish/Latex

Primer: 1 coat Moore Advance Waterborne Int. Alkyd Primer (790)
2 additional coats on existing raw or dark-painted wood
1 coat Akzo Glidden Professional Gripper GP 3210
1 coat S-W Premium Wall and Wood Primer B28W111
First Coat: 1 coat Moore Advance Waterborne Int. Alkyd Satin (792)
1 coat Akzo Glidden Professional Diamond 350 Acrylic Eggshell GP
1403
1 coat S-W Pro Classic Interior WB, Acrylic/Alkyd Classic B20.
Second Coat: 1 coat Moore Advance Waterborne Int. Alkyd Satin (792)
1 coat Akzo Glidden Professional Diamond 350 Acrylic Eggshell GP
1403
1 coat S-W Pro Classic Interior WB, Acrylic/Alkyd Classic B20.
a. Total DFT not less than: 4.0 mils

J. Metallic Paint: Provide Latex Metallic Glaze (620) by Benjamin Moore in color selected by Architect. Provide Primer, Base color and two coats of acrylic polyurethane.

2.6 EXISTING SURFACES TO BE PAINTED

- A. Existing surfaces shall be painted in accordance with schedule given in Article 2.4. Where existing paint must be removed down to base material, provide first or prime coat as specified.

2.7 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.

2.8 FIRESTOPPING EXPOSED TO VIEW

- A. Paint all exposed firestopping following inspection and acceptance by the City of New York. Color and sheen shall match adjacent surface.

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. 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.

- C. 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.
- D. 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.
- E. Remove electrical panel box covers and doors before painting walls. Paint separately and re-install after all paint is dry.
- F. 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.
- G. 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.
- H. All coats shall be dry to manufacturer's recommendations before applying succeeding coats.
- I. All suction spots or "hot spots" in plaster after the application of the first coat shall be touched up before applying the second coat.
- J. 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
 - 1. 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.

2. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.
3. 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.

C. Metal Surfaces

1. Weld Fluxes: Remove weld fluxes, splatters, and alkali contaminants from metal surfaces in an approved manner and leave surface ready to receive painting.
2. 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.
3. 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.
4. Galvanized Metal: Prepare surface as per the requirements of ASTM D 6386.
5. 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.

1. 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 Surfaces: Sand to remove all roughness, loose edges, splinters, or splinters and then brush to remove dust. Wash off grease or dirt with an approved cleaner. Fill all cracks, splits, nail holes, screw holes, and surface defects with putty after the priming coat has been applied. Putty shall be brought up flush with the surface and sanded smooth and touched-up with primer when dry.
 - 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

1. 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.
2. 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.
3. 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.
4. 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, convactor covers, covers for finned tube radiation, grilles, etc., are in place in areas scheduled to be painted.
5. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint, before final installation of equipment.
6. Paint the back sides of access panels, removable or hinged covers to match the exposed surfaces.

7. Finish doors on tops, bottoms, and side edges the same as the faces, unless otherwise indicated.
8. Enamel finish applied to wood or metal shall be sanded with fine sandpaper and then cleaned between coats to produce an even surface.
9. 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

1. 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.
 2. 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

SECTION 101100

VISUAL DISPLAY SURFACES

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 visual display surfaces as shown on the drawings and/or specified herein, including but not necessarily limited to the following:

- 1. Glass Dry Erase Magnetic Markerboards.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For visual display surfaces. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Show locations of panel joints.
 - 2. Include sections of typical trim members.
- C. Samples for Initial Selection: For each type of visual display surface indicated, for units with factory-applied color finishes, and as follows:
 - 1. Actual sections of visual display surface and tackboard assembly.
 - 2. Include accessory Samples to verify color selected.
- D. Product Schedule: For visual display surfaces.
- E. Qualification Data: For qualified Installer.
- F. Maintenance Data: For visual display surfaces to include in maintenance manuals.
- G. Warranties: Sample of special warranties.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of motor-operated, sliding visual display units required for this Project.
- B. Source Limitations: Obtain visual display surfaces from single source from single manufacturer.
- C. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 50 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver factory-built visual display surfaces, completely assembled in one piece without joints, unless otherwise indicated.
- B. Store visual display surfaces vertically with packing materials between each unit.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install visual display surfaces until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above ceilings is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.7 WARRANTY

- A. Glass Markerboard Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace glass markerboards that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Surfaces lose original writing and erasing qualities.
 - b. Surfaces exhibit crazing, cracking, or flaking.
 - 2. Warranty Period: Ten (10) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Tempered Glass Face Sheet: Manufacturer's standard 1/4-inch thick low-iron ultra-clear glass.
 - 1. Gloss Finish: Gloss finish; dry-erase markers wipe clean with dry cloth or standard eraser.
- B. Hardboard: ANSI A135.4, tempered.
- C. Particleboard: ANSI A208.1, Grade M-1, made with binder containing no urea formaldehyde.
- D. Fiberboard: ASTM C 208.
- E. Extruded Aluminum: ASTM B 221, Alloy 6063.
- F. Glass Markerboards:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Basis of Design: Glass Dry Erase Markerboard by Claridge Products and Equipment, Inc.
 - b. American Chalkboard.
 - c. Best-Rite Manufacturing.
 - d. Lemco, Inc.
 - e. Nelson/Adams (NACO)
 - f. PolyVision Corporation; a Steelcase company.
 - 2. Color: Calm White.
 - 3. Mounting: Invisi-mount (MGMI / Z-bar hanger clips).
 - 4. Backing: Steel.
 - 5. Size: As indicated on the Drawings.
 - 6. Accessories: Provide eight (8) magnets per unit. Provide one (1) magnetic accessory tray per unit.
 - 7. Construction: Balanced, high-pressure, factory-laminated markerboard assembly of three-ply construction consisting of backing sheet, core material, and 0.021-inch-thick, porcelain-enamel face sheet with high-gloss finish.
 - 8. Manufacturer's Standard Core: Minimum 1/4 inch thick, with manufacturer's standard moisture-barrier backing.
 - 9. Laminating Adhesive: Manufacturer's standard, moisture-resistant thermoplastic type

10. Corners: Square.
11. Size: As indicated on Drawings.
12. Mounting: Wall.
13. Factory-Applied Aluminum Trim: Manufacturer's standard with clear anodic finish.

2.2 FABRICATION

- A. Visual Display Boards: Factory assemble visual display boards.
 1. Where factory-applied trim is indicated, trim shall be assembled and attached to visual display units at manufacturer's factory before shipment.

2.3 GENERAL FINISH REQUIREMENTS

- 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: 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 substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, surface conditions of wall, and other conditions affecting performance of the Work.
- B. Examine walls and partitions for proper preparation and backing for visual display surfaces.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION AND INSTALLATION

- A. Deliver factory-built units completely assembled and of dimensions shown in details and in accordance with manufacturer's shop drawings as approved by the architect.

- B. Follow manufacturer's instructions for storage and handling of units before installation.
- C. Do not install on damp walls or in damp and humid weather without heat in the building.
- D. Install level and plumb, keeping perimeter trim straight in accordance with manufacturer's recommendations.
- E. Comply with manufacturer's written instructions for surface preparation.
- F. Clean substrates of substances that could impair the performance of and affect the smooth, finished surfaces of visual display boards, including dirt, mold, and mildew.

3.3 CLEANING AND PROTECTION

- A. Verify that all accessories are installed as required for each unit.
- B. At completion of work, clean surfaces and trim in accordance with manufacturer's recommendations, leaving all materials ready for use.

END OF SECTION

SECTION 101400

SIGNAGE

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes:
 - 1. Room identification signs (interior and exterior).
 - 2. Interior directional and door signage.
 - 3. Fire egress, floor, and other signs required by Code.
- B. Related sections
 - 1. Section 09 29 00 – Gypsum Drywall Assemblies.

1.2 QUALITY ASSURANCE

- A. For actual installation of the interior panel signs, use only personnel who are thoroughly familiar with the manufacturer's recommended methods of installation and who are completely trained in the required skills.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data and installation instructions for each type of sign required.
- B. Samples: Submit samples of each sign showing finishes, colors, surface textures and qualities of manufacture and design of each sign component, including graphics.
- C. Shop Drawings: Submit shop drawings for fabrication and erection of signs. Include plans, elevations, and large scale details of sign wording and lettering layout. Show anchorage and accessory items. Furnish location template drawings for items supported or anchored to permanent construction.

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.

PART 2 PRODUCTS

2.1 INTERIOR SIGNS

- A. Acceptable manufacturers: 2/90 Sign System; (616) 656-4300.
- B. Interior Panel Signs: 2/90 Sign System – Standard Sign Series with ABS and aluminum inserts; with integral ADA inserts; locking end caps.
 - 1. Sign Types: As indicated on the Drawings.

2.2 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 colors and surface textures as selected by the Design Consultant.

2.3 ACCESSORIES

- A. Mounting Hardware: Perpendicular wall mount bracket on walls or glass

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where signs 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 units and components at the locations directed by the Design Consultant, securely mounted with concealed theft-resistant fasteners. Attach to substrates in accordance with the manufacturer's instructions.
- B. Install level, plumb, and at the proper height. Cooperate with other trades for installation of sign units to finish surfaces. Repair or replace damaged units as directed by the Design Consultant.

END OF SECTION

SECTION 102813

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, including, but not limited to, the following:
 - 1. Mirrors.
 - 2. Soap dispensers.
 - 3. Sanitary napkin dispenser and disposal units.
 - 4. Grab bars.
 - 5. Toilet tissue dispenser.

1.3 RELATED SECTIONS

- A. Gypsum board partitions - Section 092900.
- B. Ceramic tile - Section 093000.

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: Theftproof 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. Provide products manufactured by Bobrick Washroom Equipment Co., American Specialties, Inc., Bradley Corp., A & J Washroom Accessories or approved equal.

2.5 ACCESSORY SCHEDULE

- A. See schedule in 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 theftproof 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 SUMMARY

- A. This section includes:
 - 1. Fire extinguishers and cabinets.
- B. Related sections:
 - 1. Section 09 29 00 – Gypsum Board Assemblies.
 - 2. Section 21 05 00 – Common Work results for Fire Suppression.

1.2 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.

1.3 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. Acceptable manufacturers:
 - 1. JL Industries.
 - 2. Larsen's Mfg. Co.

3. Potter Roemer.
4. Or approved equal.

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 2-A:10-B: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 factory prefinished steel with stainless steel door and frame, recessed, with plexiglass panel, sized to fit within the partition or wall depth. Provide fire rated cabinets within fire rated partitions.
- B. Color: Stainless steel with red lettering "FIRE EXTINGUISHER".
- C. Design is based on Models SS-2409-R1, SS-2409-5R" or SS-2409-R3 of Larsen's Mfg. Co. depending on the wall depth. (Note: Use Model Models FS-SS-2409-R1, FS-SS-2409-5R" or FS-SS-2409-R3 at fire rated partitions). Other manufacturers noted herein may substitute their equivalent cabinet upon acceptance by the Architect.

2.5 IDENTIFICATION

- A. Identify fire extinguisher in cabinet with lettering spelling "FIRE EXTINGUISHER" painted on door by silk-screen process. 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.

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 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

SECTION 11 52 13.50

TAB-TENSIONED SURFACE-MOUNTED FRONT PROJECTION SCREEN

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Electrically operated, surface mounted, front projection screens.
- B. Front projection screen controls.

1.2 RELATED SECTIONS

- A. Division 5 - Metal Fabrications: Suspension systems for projection screens.
- B. Section 06 40 00 - Architectural Woodwork.
- C. Section 09 22 26 - Suspension Systems.
- D. Section 09 26 13 - Gypsum Veneer Plastering.
- E. Section 09 21 16.23 - Gypsum Board Shaft Wall Assemblies.
- F. Section 09 51 23 - Acoustical Tile Ceilings.
- G. Division 26 for electrical wiring, connections, and installation of remote control switches for electrically operated projection screens.

1.3 REFERENCES

- A. NFPA 70 - National Electrical Code.
- B. NFPA 701-99 - Fire Tests for Flame-Resistant Textiles and Films.
- C. GREENGUARD Environmental Institute Gold.
- D. US Green Building Council.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Wiring diagram for electrically operated units.

- D. Shop Drawings: Shop drawings showing layout and types of projection screens. Show the following:
 - 1. Location of screen centerline.
 - 2. Location of wiring connections.
 - 3. Seams in viewing surfaces.
 - 4. Detailed drawings for concealed mounting.
 - 5. Connections to suspension systems.
 - 6. Anchorage details.
 - 7. Accessories.
 - 8. Frame details.
 - E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
 - F. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
- 1.5 QUALITY ASSURANCE
- A. Single Source Responsibility: Obtain each type of projection screen required from a single manufacturer as a complete unit, including necessary mounting hardware and accessories.
 - B. Coordination of Work: Coordinate layout and installation of projection screens with other construction supported by, or penetrating through, ceilings, including light fixtures, HVAC equipment, fire-suppression system, and partitions.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Do not deliver projection screens until building is enclosed and other construction where screens will be installed is substantially complete.
 - B. Store products in manufacturer's unopened packaging until ready for installation.
 - C. Protect screens from damage during delivery, handling, storage, and installation.
- 1.7 COORDINATION
- A. Coordinate work with installation of ceilings, walls, electric service power characteristics, and location.
- 1.2 WARRANTY
- A. Manufacturer limited warranty: 7 years from date of purchase.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Draper, Inc., which is located at: 411 S. Pearl P. O. Box 425; Spiceland, IN 47385-0425; Toll Free Tel: 800-238-7999; Tel: 765-987-7999; Fax: 866-637-5611; Web: www.draperinc.com
- B. Acceptable Manufacturer: Legrand Inc. (Da-Lite, located at: 6436 City West Parkway, Eden Prairie, MN 55344 USA; Tel: 866-977-3901; Fax: 877-894-6918; Web: <https://www.legrandav.com/products/da-lite>
- C. Acceptable Manufacturer: Stewart Filmscreen Corporation; located at: 1161 Sepulveda Blvd, Torrance, CA 90502-2737. Toll Free Tel: 800-762-4999; Tel: 310-784-5300; Fax: 310-326-6870; Web: <https://www.stewartfilmscreen.com/>
- D. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 MOTORIZED, SURFACE MOUNTED, FRONT PROJECTION SCREENS

- A. Basis of Design Product: Acumen V: Electric motor operated, tab tensioned, wall or ceiling mounted projection screen. Contoured case of 0.156" (3.9624 mm) thick, 9-gauge extruded aluminum. Removable front fascia conceals viewing surface that retracts completely inside the case. Case dimensions are 7-1/8 inches h x 5-7/8 inches d (181 mm x 149 mm).
 - 1. Motor mounted inside screen roller on rubber isolation insulators. Motor UL certified, rated 110-120V AC, 60 Hz, three wire, instantly reversible, lifetime lubricated with pre-set accessible limit switches. Motor shall be left mounted. Low voltage control built into endcap.
 - 2. System Options:
 - a. Contoured aluminum case finished in a white color (standard).
 - b. Wall Mount Brackets (standard): "Floating" steel brackets, finished to match screen case.
 - 3. Projection Viewing Surface:
 - a. TecVision XH800X ALR - Formulated for use with short throw projection in moderate to high ambient light applications. 0.8 gain. Rejects 57% of off-axis ambient light, supports extremely wide viewing angles. Lens/Throw distance ratio for best brightness uniformity: 0.7:1 or longer. Imaging Science Foundation certified. 4K ready. Dark backing.
 - 4. Tab-Tensioning System:
 - a. Viewing surface with integrated tabs and cable on each side of fabric to provide tension and ensure flat viewing surface. Viewing surface and tabs CNC cut as a single piece. Tabs RF welded to the back of viewing surface to prevent tab separation. Tab adhesives are not acceptable. Viewing surface inserted into aluminum bottom dowel.
 - 5. Viewing Area H x W.
 - a. HDTV Format (16:9). Black masking borders standard.

- 1) 119 inch (3022 mm) diagonal, 58 inches x 104 inches (1473 mm x 2641 mm)
6. Provide an extra screen drop with an overall screen drop of 12 inches (254 mm) with a black masking top border.
- B. Comparable Design Products:
 1. Da-Lite Tensioned Cosmopolitan
 2. Stewart Filmscreen Luxus
 3. Or Approved Equal

2.3 FRONT PROJECTION SCREEN CONTROLS

- A. General: All controls are UL Certified.
 1. Built-in low voltage control unit with three button 24V switches and cover plate to stop or reverse screen at any point, built-in RF receiver, built-in Video Interface Control trigger for 3V-28V, RS232, and dry contact relays (standard).
 2. Single station control rated 115V AC, 60 Hz with 3-position rocker switch with cover plate to stop or reverse screen at any point.
 3. Motor shall be left mounted.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify rough-in openings are properly prepared.
- C. 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 in accordance with manufacturer's instructions.
- B. Install front projection screens with screen cases in position and relationship to adjoining construction as indicated, securely anchored to supporting substrate, and in manner that produces a smoothly operating screen with plumb and straight vertical edges and plumb and flat viewing surfaces when screen is lowered.
- C. Test electrically operated units to verify that screen, controls, limit switches, closure and other operating components are in optimum functioning condition.

PROTECTION

- D. Protect installed products until completion of project.
- E. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 122413

WINDOW SHADES

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Motorized blackout shades at Orientation Room.
 - 2. Field measurements of as-built conditions.
 - 3. Accessories and hardware required for complete installation and operation.
- B. Related sections
 - 1. Section 062000 – Finish Carpentry
 - 2. Section 092900 – Gypsum Drywall Assemblies

1.2 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.

1.3 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.

1.4 WARRANTY

- A. Manufacturer's standard non-depreciating 25-year limited warranty covering all hardware, chains, motors, motor control system and shade cloth.

1.5 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 MOTORIZED BLACKOUT SHADES

- A. Basis of Design: ElectroShade System with WhisperShade made by the Mecho Shade Corp or equal made by Sol-R-Veil Inc., Draper or approved equal. Refer to plans and window shade schedule.
- B. Shade system shall be pre-engineered overrunning clutch design that disengages to 90% during the raising and lowering of the shade. The brake can stand a pull force of 40 lb. in the stop position. Requires no adjustment. Self-lubricating hub on to which the brake system is mounted includes an articulated brake assembly which assures smooth, non-jerky operation in raising and lowering the shades. System shall include the following components:
 - 1. Provide shade hardware allowing for the removal of shade roller tube from brackets without removing hardware from opening and without requiring end or center supports to be removed.
 - 2. Provide shade hardware that allows for removal and remounting of the shade bands without having to remove the shade tube, drive or operating support brackets.
 - 3. Provide for universal, regular and offset drive capacity, allowing drive chain to fall at front, rear or non-offset for all shade drive end brackets. Universal offset shall be adjustable for future change.
 - 4. Provide shade hardware system that allows for removable regular and/or reverse roll fascias to be mounted continuously across two or more shade bands without requiring exposed fasteners of any kind.
 - 5. Provide shade hardware system that allow for operation of multiple shade bands (multi-banded shades) by a single chain operator. Connectors shall be offset to assure alignment from the first to the last shade band.
 - 6. Provide shade hardware constructed of minimum 1/8" thick plated steel or heavier as required to support 150% of the full weight of each shade.
 - 7. Drive Chain: #10 qualified stainless-steel chain rated to 90 lb.
 - 8. Recessed mounted in ceiling pocket.
 - 9. Regular roll, single roller
 - 10. 120VAC; provide power panels and controls
 - 11. Dry Contact Control with two-button up/down movements at single station.
- C. 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.

2.2 SHADE CLOTH

- A. Shade cloth shall be Chelsea Blackout 0250 Opaque series – “0280 Silver” with white back by Mechoshade or approved equal.

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 shifting 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 treatments 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 assure 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 manufacturers 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

