Project Manual

PROJECT NO.	291036-02
PROJECT TITLE:	Rehab Administration Building Exterior
DATE:	10 September 2024

State University of New York

at

Purchase College

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

Perkins Eastman Architects
115 Fifth Avenue
New York, NY 10003

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END OF SECTION

STATE UNIVERSITY CONSTRUCTION FUND
NOTICE TO BIDDERS

The State University Construction Fund will receive sealed Proposals for Project No. **291036-02 'Rehab Administration Building Exterior'** located at Purchase College until 2:00 p.m. Local Time on **October 9, 2024** sent/delivered to 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 earlier time send an email to modifymybid@suny.edu alerting the Fund of your intent to modify.

The Contractor shall complete all work necessary for substantial completion within **595** calendar days from receipt of the Notice to Proceed.

The Fund's project specific goals for this project are **18% MBE and 12% WBE and 3% SDVOB**. See Section 00 21 13 30 MWBE-SDVOB Utilization Plan Instructions dated Nov 2023. Utilization Plans shall be accepted in the ONLINE FORMAT ONLY using the Fund's web-based application; any other form of submittal will be rejected.

A pre-bid conference and project walk through will be held on **September 25, 2024 at 1:00 p.m. Local Time** with all contractors assembled at **the Administration Building at Purchase College, Purchase, NY 10577.** 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
Perkins Eastman
115 Fifth Avenue, 3rd Floor, New York, NY 10003
(Nicholas Wan, n.wan@perkinseastman.com, 646-786-1739)

Site (SUNY Campus)
SUCF Trailer
Salter Drive, Purchase, NY 10573
(Charles Pinnix, charles.pinnix@purchase.edu, 914-557-3211)

Campus at which the work is to be performed:
Purchase College
735 Anderson Hill Road, Purchase, NY 10577

Plan Holders:

Dodge Reports	Visit www.construction.com Email: support@construction.com
ConstructConnect	Visit www.cmdgroup.com. Email: content@constructconnect.com
Construction Journals	Visit www.constructionjournal.com
Construction Contractors Association (Hudson Valley)	330 Meadow Ave, Newburgh, NY 12550 www.ccahv.com
Eastern Contractors Association, Inc.	6 Airline Drive, Albany, NY 12205 www.ecainc.org
Builders Exchange of the Southern Tier	65 East Main St., Falconer, NY 14733 www.bxstier.com
Syracuse Builders Exchange	6563 Ridings Road, Syracuse, NY 13206 www.syrabex.com

Plans will be available on **September 12, 2024** from the **Consultant's Office** contact in either electronic or paper format. Bidders will be able to access the project online at the Printer's web site:

https://www.dropbox.com/scl/fo/x96pjk0tgkn9aedbr17wr/AOA_wQ37sTqGMh-gWf3jZkY?rlkey=fjfkj1faxizp01k8xtpurxflb&st=sf24d0oq&dl=0

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 Schedule A of Attachment A of the Construction Agreement. All insurance must be provided by companies approved by the Fund and be either licensed (admitted) by the New York State Department of Financial Services (NYS DFS) to issue insurance in the State of New York or authorized by NYS DFS and have an A.M. Best Company rating of "A-" Class "VII" or better. 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, Jeremy Clausi, or Kelly Whitbeck.

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.

Perkins Eastman, 115 Fifth Avenue, 3rd Floor, New York, NY 10003

SUCF Project No. 291036-02

SUCF Project Name Rehab Administration Building Exterior

Planholder's Log

The information below will be published on the Fund's website as a PDF.

List addendum as / if Used. Confirm receipt of addenda with planholders

						(please note: UPS will not ship to PO Boxes)						Supplemental information that will not be on the public plan holder's list											
Set #	Ship Date	Shipped to:	Bidder	Sub / other	Street	City	State	Zip Code	Phone	Fax	E-mail	Add #1 xx/xx/xx	Add #2 xx/xx/xx	Add #3 xx/xx/xx	Add #4 xx/xx/xx	Ship. Method	Check Number	Check Rec'd Date	of Sets Returned	Date Returned	Check Ret'd Date	UPS Chg Bid Set	Amt of check
1		SUCF (to Elizabeth Freund): (2) sets of drawings (3) sets of half sized drawings (3) copies of the Project Manual --- (3) sets of the front end of the Project Manual up to and including Division 1, including wage rates and front and back covers. These sets shall be unbound and printed double-sided.		x	353 Broadway	Albany	NY	12246	(518) 689-2619	(518) 689-2635	elizabeth.freund@suny.edu						n/a							
2		Campus (to Sean Connolly): (1) set of drawings (1) set of half sized drawings (2) copies of the project manual		x	735 Anderson Hill Rd	Purchase	NY	10577	914-557-3211		sean.connolly@purchase.edu						n/a							
3																	n/a						
4																	n/a						
5																							
6																							
7																							
8																							
9																							
10																							

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, have an A.M. Best Company rating of "A-" Class "VII" or better, and such companies must be either 1) licensed by the New York State Department of Financial Services (NYS DFS) or 2) authorized by NYS DFS to issue insurance in the State of New York.
    - Please consult your insurance agent prior to bidding, who should be made aware of the requirements of Agreement Section 5.06 Insurance and Schedule A.
    - Certificates of Insurance must be in the formats required by Schedule A of Attachment A.
- 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.*

- 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.

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 of information requested by the Fund or Consultant.

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.

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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 a Project Manual binding Bidding Documents, Contract Documents, and Technical 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 contain omissions, errors, 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) Prices inserted shall be in whole dollar amount but if cents are inserted, the Fund shall round the amount down to the nearest whole number. 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.

   a. 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. However, if a Proposal deposited with the Fund prior to the opening of bids is misplaced by the Fund and not opened by the Fund at the designated time of opening, then the Fund, in its sole discretion, may open such Proposal as soon as possible after the misplaced Proposal is discovered and confirmed to have been misplaced by the Fund. If the Fund decides to open such Proposal, the Fund will make reasonable attempts to notify the other bidders and allow such other bidders to view such opening by Webex or equivalent broadcast. Unopened Proposals will be returned to the bidder.

(7) Except as set forth herein, bids may be modified or withdrawn prior to the time of opening of bids as designated in the Bidding and Contract Documents only in writing or by email notice received by the Fund.

a. A written or email notice of modification or withdrawal 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 or withdrawal 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.

b. In the event an employee or courier of the bidder deposits the bidder’s Proposal on the day of the bid opening and subsequently asks for its return to make modifications prior to the designated time of opening, the Fund, in its sole discretion, may refuse to return a Proposal unless such employee or courier presents reasonable proof that he/she is duly authorized by the bidder and, if returned by the Fund, require that the Proposal be properly re-deposited with the Fund prior to the designated time of opening. The Fund accepts no responsibility for Proposals returned to duly authorized employees or couriers that may subsequently be deposited after the designated time for opening or modified in an informal manner or modified in a manner not acceptable to the bidder.

(8) Except as set forth herein or as permitted by law and unless the Fund is of the opinion that it is in the public’s best interest to permit the same, permission will not be given to modify, explain, or withdraw any Proposal or part thereof after the time designated in the Bidding and Contract Documents for the opening of bids.

(9) Withdrawal of Bid After the Bid Opening

a. Unless another time is permitted by the Fund in writing, within five (5) business days of the bid opening or of notification that the previous low bidder has been rejected or permitted to withdraw, a bidder may request, in writing by email to the Fund, the withdrawal of its bid on bidder's letterhead signed by a duly authorized representative of the bidder who signed the Proposal.
b. The Fund may conduct or have conducted a fact-finding proceeding to develop information concerning the request for withdrawal. A request for withdrawal of a bid made after the specified number of days allowed may result in forfeiture of the bid security.
c. Following a timely request for withdrawal of a bid, the bid security may be returned if the bidder establishes by credible evidence, including original documents when requested, the following:

    i. An error, clerical as opposed to judgmental in nature and verifiable by written evidence, occurred in the computation of the bid,
    ii. The error constitutes either an unintentional and substantial computational error or an unintentional omission of a substantial quantity of labor and/or material from the final bid computation,
    iii. Award of the contract to the bidder at the amount of the bid would cause financial hardship to the bidder,
    iv. Withdrawal of the bid is permitted by law or in the public's best interest, and
    v. The absence of gross negligence in the preparation of the bid. For the purposes of this subparagraph, gross negligence includes, but is not limited to: (1) the apparent failure of a bidder to account for two or more categories (divisions) of work; (2) the bidder's use of multiple erroneous quotations from subcontractors or suppliers; (3) the bidder's failure to obtain valid quotations from qualified subcontractors, suppliers, or insurance carriers; (4) the bidder's failure to properly account for the minimum qualifications of a bidder in Section 7 herein, or (5) submission to the Fund of a bid withdrawal request within the preceding six (6) months or other period previously agreed to by the Fund and the bidder.

d. Required documentation in support of a request for withdrawal of bid includes, but is not limited to the following:

    i. A narrative that describes the sequence of events that led to submitting a purported errant proposal and the bidder's reasons for its request to withdraw the proposal
    ii. Take-off sheets, printed copies of electronic estimates, if applicable
    iii. Annotations on the bid documents to show where the purported error occurred (annotations can provide the narrative explanation of the purported error and how it occurred as indicated in item i. above)
    iv. Calculations for the bid as submitted compared with alternative calculations to the bid that eliminate the purported error
    v. Documentation demonstrating the financial impact to bidder to perform the project for the amount initially bid.

e. If the bidder fails to provide the necessary documentation or fails to meet its burden of proof, the Fund may deny the request to withdraw without penalty and find the bidder nonresponsive. The decision of the Fund shall be made in its sole discretion and shall be final and conclusive. The Fund will advise the bidder in writing of its determination. In the event the Fund denies the bidder's request to withdraw without penalty, the bidder's bid security may be forfeited and become the property of the Fund. At the discretion of the Fund, in lieu of forfeiture of bid security, the Fund may offer the bidder an alternate resolution as may be agreed to by the parties.

f. Once a request to withdraw is made, the bidder is ineligible for award. Upon receipt of a request to withdraw, the Fund shall continue to progress the award process considering only the remaining bids.

(10) Protesting the Bid Results after Bid Opening

Not more than ten (10) business days after the bid opening, a bidder may submit a written protest challenging the bid results following the procedure available on the Fund website at the following location:

https://sucf.suny.edu/sites/default/files/docs/ContractAwardProtestProcedure.pdf

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(s) 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.

a. Requests should be made as far in advance of, but not later than, the date and time scheduled for receipt of bids. In the judgment of the Fund, it may be impractical to address requests that are submitted too close to the bid opening date.
b. Requests for use of equivalent products shall comply with Section 2.20 of the Agreement.
c. Such interpretation or correction as well as any additional Contract provision(s) 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.
d. Such interpretation or correction or additional Contract provision(s) issued by Addendum may not satisfy a bidder's request nor result in Bidding and Contract Documents that are without ambiguity, inconsistency or error. Post bid, requests for interpretations or corrections may be made after execution of the Agreement in accordance with Section 01 26 13 Requests for Information of the General Requirements and Sections 1.06, 2.01, 2.02, and 2.08 of the Agreement.

e. 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.

a. Prospective bidders are warned that no trustee, officer, agent or employee of the Fund, Campus, 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.
b. The Fund has no obligation to provide responses.

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. Unit prices shall be calculated using the quantity and dollar amounts for the corresponding allowance shown in the Proposal.

a. In the event the Proposal contains blank spaces for unit prices or the Fund elects to adjust any unit price filled in by a bidder, the inserted or adjusted amount shall be agreeable to both the bidder and the Fund, or, in its sole discretion, the Fund may reject any unit prices.
b. In the case of rejection of unit prices by the Fund, the bidder acknowledges that the amount of work in the corresponding allowance shall be performed within the amount of its base bid.
c. If any unit price calculations shown in words and its equivalent shown in figures do not agree with the amounts shown for the corresponding allowance, the written words of the corresponding allowance shall be binding upon the bidder.
d. Unit prices will not be used to determine the low bidder.

(3) If alternates are included in the bidding documents, the Fund reserves the right to accept or reject any or all alternates.

a. The Fund shall determine the lowest bid by adding to or deducting from the Total Bids of the bidders, the additive or deductive alternates, if any, that the Fund elects to accept after the opening of the bids.
b. Alternates will be accepted in the order they are set forth in the Proposal.
c. Alternates, if any, are described in Section 01 23 00 (Section B) of the Technical Specifications.
d. Rejected alternates will not be used in combination with the Total Bid and other accepted alternates, if any, to determine the low bidder.

e. Alternates will be accepted or rejected at the sole and absolute discretion of the Fund.

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.

(4) Where the bidder was not responsive in providing the complete Post Bid Information required under Section 8 of the Information for Bidders within the time specified by the Fund and doesn’t provide a reasonable extension of the 45-day award period, the Fund may reject the bid as nonresponsive and retain the bid security.

Section 7 Qualifications of Bidders

(1) A bidder must demonstrate, to the satisfaction of the Fund, that it has successfully completed, within the last ten (10) years, two (2) contracts similar in size, to 50% the value, scope and complexity to this contract, one of which is a single bid contract as described in Section 14.

a. For scope and complexity, similar work is defined as exterior and interior renovations of a Historic wood building as further described in the General Requirements, Section 01 11 00, Description of Work.

b. The details of the bidder's relevant contract experience shall be submitted on Attachment A of the Proposal, "List of Completed Similar Construction Contracts" (the List).

   i. 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.
   ii. 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.

c. The determination of relevant contract experience in terms of size, scope and complexity will be at the sole and absolute discretion of the Fund. In making its determination, evaluation of a bidder's experience may include, but is not limited to, the following:

   i. Size may be evaluated by comparing the amount of the Total Bid to the dollar value of the bidder's relevant contract amounts with reasonable adjustments for cost changes over time and/or geographic location.
   ii. Size may also be evaluated using other quantities such as area, volume of work completed, or other criteria determined by the Fund.
   iii. The definition of completion of the relevant contracts shall be the date the contract was substantially completed and ready for its intended use as defined in Section 1.01 of the Agreement.
   iv. Size and/or time limits may be relaxed approximately 5% for uncertainties related to the bid calculation and/or timing of the actual receipt of bids versus a completed relevant contract.
   v. Scope and Complexity may be evaluated by comparing the scope of the work included in the Total Bid to the work in the bidder's relevant contracts. Similar work provides essentially the same intended work results as contemplated in the work included in the Total Bid. At the discretion of the Fund, similar work may reasonably differ in details of form of contract, timing, size, form, materials, methods, configuration, operation, appearance, and in other objective and aesthetic characteristics.
   vi. The form of contract for the relevant contract(s) on the List shall be a single bid prime contract for all work, as defined in Section 14 of the Information for Bidders, or equivalent contract types in which the bidder can demonstrate that it performed work of essentially the same construction scope and complexity of the work bid.

(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/or 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 as 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)). 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, if not enrolled in VendRep, 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 o https://onlineservices.osc.state.ny.us/Enrollment/login?0. 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

Paper format CCA-2 will not be accepted from a bidder who is enrolled in VendRep.

b. Not used.

c. The names and addresses of the bidder's proposed subcontractor for the Asbestos Abatement and/or hazardous material removal 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. Such completed contracts shall include significant portions of self-performed work. The determination of relevant contract experience in terms of size, scope and complexity will be at the sole discretion of the Fund as described in Section 7(1)c above.

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 as described in Section 7(1)c above.

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. Paper format CCA-2 will not be accepted from a proposed subcontractor who is enrolled in VendRep.

vi. In the event that the Fund and the Consultant reject any of said proposed subcontractors or the bidder itself for any of such subcontract work, 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 evidence of their completed CCA-2.

vii. Where the bidder designated itself for any of the aforesaid categories of work and was approved by the Fund, the bidder will not be permitted to submit another proposed subcontractor for such categories of work except where its performance of such work meets a condition(s) set forth in Section 2.26 of the Construction Agreement as determined by the Fund.

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.

c. A breakdown of the amount of the bidder's Proposal. Such breakdown shall be prepared in accordance with the format included herein 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. The three lowest bidders will receive an email containing instructions and a hyperlink to follow to complete their Utilization Plan electronically via the Fund's online Utilization Plan application. Utilization Plans will only be accepted in this online format; any other form submittals will be rejected. The Utilization Plan shall include the subcontractor/supplier description of work, the estimated work schedule, and the estimated dollar value of subcontracts and supply contracts that will be awarded to Service-Disabled Veteran-Owned Businesses.

(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. The three lowest bidders will receive an email containing instructions and a hyperlink to follow to complete their Utilization Plan electronically via the Fund's online Utilization Plan application. Utilization Plans will only be accepted in this online format; any other form submittals will be rejected. The Utilization Plan shall include the subcontractor/supplier description of work, the estimated work schedule, and the estimated dollar value of subcontracts and supply contracts that will be awarded to Minority and Women-owned Business Enterprises. 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) Within seven (7) calendar days after the opening of bids, submit a working plan and schedule showing the bidder's sequence logic for all significant activities and phases of the work from the anticipated start date to the substantial completion date in the bidder's Proposal. Use suitable charts, diagrams or bar graphs and show clearly, in sequence and timescale, all significant activities and phases with time estimates for each. If requested, revise the working plan and schedule until they are satisfactory to the Fund and the Consultant. This requirement is in addition to and not a substitute for the schedule requirements of Section 10 paragraph 1(c) herein or 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 or revise the working plan and schedule may result in the rejection of the Proposal as not responsive.

(6) 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 Total 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.

(2) The Field Order allowance may be reduced at the sole discretion of the Fund to a lower amount at the time of award of the contract.

(3) 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 information and/or data required with its Proposal and by 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.

(4) 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 past performance on completed contracts, business or technical organization, plant, financial and other sources of business experience compared with the work bid upon, justify rejection.

(5) 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 information and/or data submitted by the bidder with or after its Proposal is either adequate or suitable for the satisfactory performance of the work. As a condition of the award, the bidder agrees to preserve all estimates and documentation used to develop its Bid Proposal and produce the latter information for the Fund's examination upon notice from the Fund prior to the Fund’s approval of the Final Payment application required by the Contract.

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. 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.
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 appropriate Certificate of Liability Insurance Acord form, as well as the Acord 855, or other form acceptable to the Fund.

c. The 120-day Schedule required by the General Requirements, Special Conditions paragraph 01 32 16, titled "Project Schedule."

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 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 revised via the online Utilization Plan application and submitted to the Fund for review and approval. Business Partners can modify their Utilization Plans by visiting the Fund's website and following the instructions for the online Utilization Plan application.
    ii. The Fund will review the submitted MWBE Utilization Plan and advise the bidder of the Fund's acceptance or issue a notice of deficiency within 20 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 MWBE 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") and 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, gender identity or expression, 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.
a.

Section 12 Requirements and Procedures for Participation by New York State Certified Service-Disabled Veteran-Owned Business Enterprises ("SDVOBs")

(1) New York State Law

Pursuant to New York State Veterans' Service Law Article 3 and Parts 252.2 of Title 9 of the New York Codes, Rules and Regulations, the Fund is required to promote opportunities for the participation of New York State-certified Service-Disabled Veteran-Owned Business Enterprises in the performance of the Fund contracts to ensure progress toward the statewide SDVOB Utilization goal of 6% established by Article 3 of the New York State Veterans' Services Law.

a. New York State Veterans' Services Law Article 3 acknowledges that 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 https://sdves.ogs.ny.gov/business-search

b. 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 also 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.

c. 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.

(2) Business Participation Opportunities for SDVOBs

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 Service-Disabled Veteran-Owned Businesses (SDVOB) (based on the current availability of SDVOBs).

A contractor ("Contractor") on any contract resulting from this procurement ("Contract") must document its good faith efforts to provide meaningful participation by SDVOBs 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 SDVOB documentation. A directory of SDVOBs can be viewed at: https://sdves.ogs.ny.gov/business-search. For guidance on how the Fund will evaluate a Contractor's "good faith efforts," refer to 9 NYCRR § 252.2 and Article IX, of the Agreement.

b. The bidder understands that only sums paid to SDVOBs for the performance of a commercially useful function, as that term is defined in 9 NYCRR § 252.2, may be applied towards the achievement of the applicable SDVOB participation goal. The portion of a contract with an SDVOB serving as a supplier that shall be deemed to represent the commercially useful function performed by the SDVOB shall be 100 percent of the total value of the contract.

c. In accordance with 9 NYCRR § 252.2 (s), the bidder further acknowledges that if it is found to have willfully and intentionally failed to comply with the SDVOB 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. Any contractor who willfully and intentionally fails to comply with the service-disabled veteran owned business participation requirements in accordance with 9 NYCRR § 252.2 (s) as set forth in such State contract shall be liable to the contracting agency for damages as otherwise specified in the contract and shall provide for other appropriate remedies on account of such breach. Damages shall be calculated based on the actual cost incurred by the State agency related to the State agency's expenses for personnel, supplies and overhead related to establishing, monitoring, and reviewing certified service-disabled veteran-owned business enterprise programmatic goals.

e. By submitting a bid or proposal, a bidder agrees to demonstrate its good faith efforts to achieve the applicable SDVOB participation goals by submitting evidence thereof in a format prescribed by the Fund.

f. Additionally, a bidder will be required to submit the following information as evidence of compliance with the foregoing:

   i. An SDVOB Utilization Plan in accordance with paragraph (2) of the above Section 8 Submission of Post Bid Information. Any modifications or changes to an accepted SDVOB Utilization Plan after the Contract award and during the term of the Contract must be submitted via the online Utilization Plan application and submitted to the Fund for review and approval. Business Partners can modify their Utilization Plans by visiting the Fund's website and following the instructions for the online Utilization Plan application.

   ii. The Fund will review the submitted SDVOB Utilization Plan and advise the bidder of the Fund's acceptance or issue a notice of deficiency within 20 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 its 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, such a failure to remedy the deficiency may be grounds for disqualification of the bid or proposal for non-responsiveness or the Fund may notify the bidder and request the bidder submit a waiver form within five (5) business days.

g. The Fund may disqualify a bidder as being non-responsive under the following circumstances:

   i. If a bidder fails to submit an acceptable SDVOB Utilization Plan;

ii. If a bidder fails to submit a timely written remedy to a notice of deficiency;
iii. If the Fund determines the bidder's written remedy to a notice of deficiency is inadequate;
iv. If a bidder fails to file a waiver form in a timely manner;

h. A bidder is further subject to disqualification if:

a. The bidder fails to cooperate with the Fund; or
b. If the Fund determines that the bidder has failed to document its good faith efforts.

i. The successful bidder will be required to attempt to utilize, in good faith, any SDVOB identified within its SDVOB Utilization Plan, during the performance of the Contract. Requests for a partial or total waiver of established goal requirements made subsequent to Contract Award may be made at any time during the term of the Contract to the Fund but must be made no later than prior to the submission of a request for final payment on the Contract.

j. Over the term of the Contract, the successful bidder will be required to submit to the Fund a monthly SDVOB Contractor Compliance & Payment Reporting in the electronic format prescribed by the Fund, documenting the progress made toward achievement of the SDVOB goals of the Contract.

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.

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 plan holders 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. If the walk-through in Section 00 25 13 Pre-Bid Meetings is mandatory, the Fund expressly reserves the right to reject any Proposal as not responsive if the bidder failed to attend the mandatory walk-through.

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 Offeror/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. Bidder affirms that all costs and time associated with compliance of these health and safety requirements, including Emergency Regulations, are included in its bid. The current NYS Emergency Regulations and Guidance are available at the following website:

https://regs.health.ny.gov/regulations/emergency

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. Bidder shall comply with Section 2.03 of the Contract regarding any claims or disputes stemming from such health and safety requirements.

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SUNY State University Construction Fund

MWBE/SDVOB
UTILIZATION PLAN INSTRUCTIONS

MWBE and SDVOB Utilization Plans are required to be submitted electronically via the Fund's online Utilization Plan Application, by the three low bidders **within seven (7) calendar days** after the bid opening. Submission of a Utilization Plan which fails to at least meet each goal must be accompanied by documentation of specific efforts undertaken both pre and post bid. The Contractor is required to provide sufficient documentation of the efforts made in the development of their MWBE and SDVOB Plans. The documentation should be responsive to the "Good Faith Efforts" guidelines and demonstrate the contractor's commitment to providing opportunities for MWBE and SDVOB firms in the development of each respective Utilization Plan.

The Fund will review the MWBE and SDVOB Utilization Plans and notify the contractor of any deficiencies and determine necessary actions to bring the Plan into compliance. The firms listed on the Utilization Plan will be contacted for verification of participation. A copy of the approved Plan is 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 Utilization Plan, and the Construction Contract may be withheld.**

ONLINE UTILIZATION PLAN If you are one of the lowest three bidders and have not received an email within 24 hours, please contact SUCF.ConstructionBids@suny.edu	Following the project bid opening, the Fund will forward the three lowest bidders an email containing instructions for submitting their MWBE and SDVOB Utilization Plan. The email will provide each firm with a link to complete their Plans electronically via the Fund's online Utilization Plan application. Utilization Plans are accepted in the ONLINE FORMAT ONLY; any other form submittal will be rejected.
CONTRACT INFORMATION	▪ The contract information will appear at the top of the application screen. (Project Number, Contract Number, Bid Date, Contract Award Value, MWBE/SDVOB Contract Goals)
BUSINESS PARTNER INFORMATION **MWBE/SDVOB CONTACT**	▪ Verify the accuracy of your Company Name, Company Address and FEIN populated by the application. ▪ Enter the Contact Name, Contact Title, Phone, Fax, Email Address of the person responsible for MWBE/SDVOB participation with your organization.
SUBCONTRACTOR/SUPPLIER INFORMATION **BE ADVISED: Only firms holding "current" New York State certification status are acceptable for participation credit.**	▪ Enter a valid Federal Identification number for each MBE, WBE, and SDVOB subcontractor and supplier. ▪ The NYS certified MBE/WBE/SDVOB firm matching the Federal ID number provided will autofill in the application. ▪ Verify the subcontractor/supplier information for accuracy. **MWBE firms must be certified by the New York State Department of Economic Development Corporation** as a Minority or Women-Owned Business to comply with the program requirements. It is the responsibility of the contractor to ensure firms proposed for utilization have an active certification with NYS and are included in the directory at the time of submission. The NYS directory of certified MWBE firms is available on the Internet at https://ny.newnycontracts.com/ NOTE: Dual certified firms may be used as either, but not both, within their certification product code. **SDVOB firms must be certified by the Office of General Services, Division of Service-Disabled Veterans' Business Development** as a Service-Disabled Veteran-owned Business to comply with the program requirements. It is the responsibility of the contractor to ensure firms proposed for utilization have an active certification with NYS and are included in the directory at the time of submission. The NYS directory of certified Service-Disabled Veteran-Owned Businesses is available on the Internet at https://sdves.ogs.ny.gov/

SUNY State University Construction Fund

MWBE/SDVOB
UTILIZATION PLAN INSTRUCTIONS

SUBCONTRACTOR/SUPPLIER INFORMATION	▪ If the participation is not direct from the Prime/General Contractor, Enter the 1st or 2nd tier subcontractor's name and email address. **The prime contractor is responsible for ensuring participation included in the Plan by subcontractors/suppliers is executed.**
DESCRIPTION OF WORK **The services MWBE and SDVOB firms provide must be among those explicitly identified in the firm's profile (codes) as listed in the NYS MWBE and SDVOB Directory.** **Firms who participate in the project outside of these conditions will not be credited toward the MWBE and/or SDVOB Utilization Plan and goals for the contract.**	▪ Provide a specific but brief description of work to be performed or supplies to be purchased from the MBE, WBE, SDVOB subcontractor or supplier. ▪ Select the firm designation: Subcontractor, Supplier, or Broker The following credit will be applied for MWBE subcontractors/suppliers. ▪ Construction Subcontractor – 100% ▪ Construction Supplier (MWBE) – 60% Firms that sell goods out of their revolving inventory. **Enter the full contract value. The system will calculate 60% credit.** ▪ Construction Supplier (SDVOB) – 100% ▪ Brokers/Construction Manufacturers' Representatives – Firms serving as a third-party intermediary between consumers of items and manufacturers, suppliers, or other entities, may only receive credit for the commission they receive or their markup percentage for brokering. ▪ MWBE Manufacturers: NYS-certified MWBEs that serve and are coded as a manufacturer may receive 100% credit for their MWBE utilization.
SUBCONTRACTOR/SUPPLIER SCHEDULE	▪ Enter the anticipated start and completion dates for each MBE, WBE, and SDVOB subcontractor and/or supplier. ▪ **Enter the dates in accordance with the scope and project scheduling.**
ATTACHMENTS	▪ Upload supporting documentation i.e., letter of explanation, good faith efforts documentation. ▪ Upload signed MWBE and SDVOB Utilization Plans (original signature) ▪ After attaching documents return to the submit tab to finalize.
FINAL REVIEW	▪ Review all information prior to submitting. ▪ Select SAVE if you wish to continue working on the Plan prior to submission. ▪ To modify the Initial Plan prior to final submission, select the link provided in the original email from the Fund and choose "re-submit" for the option to edit the initial Utilization Plan.
SIGNATURE/SUBMIT ***An original signature is required on the Utilization Plan.**	▪ Provide the Name, Title, Email address and Signature of a Company Officer. ▪ Choose "Create Utilization PDF" ▪ Print and Sign MWBE and SDVOB Utilization Plans ▪ Upload the Plans into the "Attachments" section of the application. ▪ Select SUBMIT to forward for approval.
UTILIZATION PLAN MODIFICATION **Prior approval must be obtained from the Fund for decrease in participation or deletion of a firm. A letter of explanation and supporting documentation of efforts is required to be submitted to the Fund. Upload supporting documentation via the attachments tab.**	▪ To modify the Initial Plan prior to final submittal, select the link provided in the original email from the FUND and choose "re-submit" for the option to edit the Utilization Plan. ▪ To modify an existing Plan, return to the Business Partner Application ➢ **ADD** – choose "add subcontractor" on the bottom of the subcontractor/supplier tab for firms that you are adding to the plan. Click the disc icon to save. ➢ **DELETE** – To remove firms from the approved Plan, locate the name of the firm, Click the icon to save, **an explanation is required.** ➢ **PLAN VALUE UPDATE-** Click the icon next to the appropriate subcontractor and/or supplier and enter the dollar amount of the increase/decrease of the award value. Click the icon to save, **an explanation is required.** ➢ **SCHEDULE UPDATE** – Click the icon next to the appropriate subcontractor and/or supplier to change the anticipated start and completion dates for each firm. Click the disc icon to save.

For questions and/or assistance contact the Opportunities Program office. Phone: 518-320-1650 | Email: sucf.opportunityadmin@suny.edu

Section 00 25 13 Pre-Bid Meetings

A pre-bid conference and project walk through will be held on **September 25, 2024 at 1:00 p.m. Local Time** with all contractors assembled at **the Administration Building at Purchase College, Purchase, NY 10577.**

No individual or additional walk-throughs may be performed during the bid preparation 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 (Hold questions on scope until item 5 below):

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 advertised for bidding after July 1, 2023,

      1) See revised 00 21 13 20 Information for Bidders dated June 2023 and review in its entirety.

      2) See new Agreement Sections 5.06 Insurance and 5.07 Builder's Risk, and new Schedule A, and review the insurance changes in their 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.

   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:

      - **18** percent for MBE participation
      - **12** 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**%.

   e. Utilization Plans shall be accepted in the ONLINE FORMAT ONLY using the Fund's web-based application; any other form of submittal will be rejected. Low bidders will receive an email with access instructions after receipt of bids. Questions must be sent to SUCF.OpportunityAdmin@suny.edu

2. Review the timetable for submitting questions and issuing addenda.

3. Confirm the bid date and time.

   To provide for an efficient bid opening, do not submit additional documents other than two Proposals and two bid bonds in your bid envelope.

4. Advise bidders that no changes to the Contract Documents are binding unless included in an addendum. Verbal comments are not binding.

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.

   b. Remind bidders and potential subs that each must have experience performing scope similar to this project scope. Review the specific Qualifications for Bidders and the nominated subcontractors as written in the Information for Bidders with the attendees.

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. Other items:

   a. Refer the bidders to the 00 21 13 15 Contractors Bid and Post Bid Checklist.

   b. Note that for projects advertised for bids after July 1, 2023, insurance requirements have changed. Key points for bidders are:

   - All required insurance shall be written by companies that are licensed or authorized by the New York State Department of Financial Services to issue insurance in the State of New York and that have an A.M. Best Company rating of "A-," Class "VII" or better;
   - Insurances from authorized (excess line) carriers may be acceptable. Bidders must review the project specific insurance listed in Section 5.06, **Section 5.07** and Schedule A of the Construction Agreement with their agent/broker; and
   - Owner's Protective Liability Insurance is no longer required from contractors.

   For projects with bid openings on or after July 14, 2024, **Builder's Risk Insurance will <u>no longer</u> be provided by the Fund under a master builders risk program and shall be at the cost of the Contractor.**

   Bidders and Asbestos subs must consult their insurance company/agent prior to bidding.

   c. 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.

   d. Note the dollar threshold for named subcontractors back is $20,000 except for asbestos subs of any value, who must be named.

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. 291036-02**

Rehab Administration Building Exterior

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 within **595 calendar days within 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 **$ 900** 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

   _____
   Two hundred twenty seven thousand dollars $ **227,000.00**
   (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:

Alternate Number	Add/ Deduct	Amount In Words	Amount In Figures
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.

Work or Materials Description	Amount in Words	Amount in Figures
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:

Work or Materials Description	Amount in Words	Amount in Figures
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.

Addendum Number	Date	Addendum Number	Date
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____

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: **291036-02** 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 Section139-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

STATE UNIVERSITY CONSTRUCTION FUND
H. Carl McCall SUNY Building 353 Broadway ● Albany, New York 12246

IRAN ENERGY SECTOR DIVESTMENT COMPLIANCE

Printed Name of Entity Seeking to Enter into the Contract:

_____

Address:

_____

Printed Name and Title of Person Executing Certification:

_____

SUCF Project Number: **291036-02**

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 web site 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.

CERTIFICATION:

By submission of this bid or proposal, each person (as defined in paragraph (e) of subdivision one of section one hundred sixty five-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 proposal 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 list created pursuant to paragraph (b) of subdivision 3 of section 165-a of the State finance law.

STATE OF)
)ss.:
COUNTY OF)

The undersigned, being duly sworn, says (a) I am duly authorized to execute this Certification and (b) I hereby certify, under penalty of perjury, that the forgoing Certification is in all respects true and accurate.

Signature of Person Executing
Certification:_____

Subscribed and sworn to before me this_____day of_____,20____.

_____

Notary Public

Submit form with original signatures

STATE UNIVERSITY CONSTRUCTION FUND
H. Carl McCall SUNY Building 353 Broadway ● Albany, New York 12246

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

By submission of this proposal, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, under penalty of perjury, that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of section two hundred one-g of the labor law.

I, _____, hereby affirm, under penalty of perjury, that
Printed Name of Person Executing Certification

I am _____ of the above-named bidder, that I am
Printed Title of Person Executing Certification

authorized to make this certification on behalf of such bidder, and I further certify that this certification is true, accurate and complete to the best of my knowledge and belief.

The undersigned, being duly sworn, says (a) I am duly authorized to execute this Certification and (b) I hereby certify, under penalty of perjury, that the forgoing Certification is in all respects true and accurate.

_____
signature

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/she executed the same.

_____
Notary Public

Submit form with original signatures

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: _____

STATE UNIVERSITY CONSTRUCTION FUND
H. Carl McCall SUNY Building 353 Broadway ● Albany, New York 12246

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: _____

Attachment A – List of Completed Similar Construction Projects

Bidder Name:

SUCF Project No.: 291036-02

Bidders must provide two (2) example projects completed in the past ten (10) 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			

Completed By:	Phone Number: Email: Date:

APPENDIX A

For SUCF Project No. 291036-02

BID BREAKDOWN

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

	DIVISION OR SECTION	**AMOUNT**
1.	Division 1 – General Requirements	$ 487,719
2.	Division 2 – Hazardous Materials	$ 445,178
3.	Division 2 – Demolition	$ 139,090
4.	Division 3 – Concrete	$ 5,064
5	Division 4 – Masonry	$ 302,237
6.	Division 6 – Wood and Plastics	$ 248,271
7.	Division 7 – Thermal & Moisture Protection	$ 673,283
8.	Division 8 – Openings	$ 617,322
9.	Division 9 – Finishes	$ 193,641
10.	Division 22 – Plumbing	$ 6,811
11.	Division 23 – HVAC	$ 28,426
12.	Division 26 – Electrical	$ 73,225
13.	Division 31 – Building Earthwork	$ 97,340
14.	Division 31 – Site Earthwork	$ 46,072
15.	Division 32 – Site Improvements	$ 78,758
16.	Division 33 – Site Utilities	$ 267,692
17.	Sum of all lines above (**Base Bid)**	**$ 3,710,129**
18.	Field Order Allowance	$ 227,000
	Total Bid	**$ 3,937,129**

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 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

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 <u>not</u> 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 <u>joint venture</u>, 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 Contractors 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 uncontemplated 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 Insurance Requirements

(1) General Provisions

a. Prior to the execution of the Agreement, the Contractor shall at its sole cost and expense, procure and furnish to the Fund a Certificate of Insurance and required endorsements in a form satisfactory to the Fund demonstrating that the Contractor has complied with the specific provisions of this Article and the Agreement, The Contractor shall maintain in force and effect at all times during the Agreement from Notice to Proceed until Final Acceptance, or as may otherwise be required by this Article and the Agreement, policies of insurance covering all operations under the Agreement whether performed by the Contractor or its subcontractors as herein set forth.

b. All insurance required by the Agreement shall be written by companies that have an A.M. Best Company rating of “A-,” Class “VII” or better. In addition, companies writing insurance intended to comply with the requirements of the Agreement shall be licensed or authorized by the New York State Department of Financial Services to issue insurance in the State of New York or meet such other requirements as may be acceptable to the Fund in its sole and exclusive discretion. If during the duration of coverage on the Agreement, the carrier’s A.M. Best rating falls below “A-,” Class “VII,” the insurance must be replaced, on or before the renewal date of the policy with insurance that meets the requirements set forth herein.

(2) Submission of Insurance

a. **Coverage Types**. The types of insurance coverage and policy limits required from the Contractor pursuant to the Agreement are specified in Paragraph (3) Specific Coverage below and limits outlined in Schedule A attached hereto (“Schedule A”).

b. **Policy.** Except as may be otherwise specifically provided herein or agreed to in writing by the Fund, policies of insurance must be maintained on an occurrence basis at all times during the Agreement from Notice to Proceed until Final Acceptance, or as may be otherwise required by this Article and the Agreement, with limits not less than those set forth in Schedule A and as required by the terms of the Agreement, or as required by law, whichever is greater. If such insurance contains an aggregate limit, it shall apply separately on a per project basis.

c. **Certificates of Insurance.** The Contractor shall provide the Fund a Certificate or Certificates of Insurance, on the appropriate Certificate of Liability Insurance ACORD form, as well as the ACORD 855 NY form for liability insurance including required policy endorsements, in accordance with New York Insurance Law and submitted directly by the insurance broker or agent to the Fund, before commencing any work under the Agreement. The certificate C105.2 or the U26.3 (State Insurance Fund) are the only acceptable proof of coverage for Worker’s Compensation. The DB120.1 is the only

acceptable proof of coverage for Disability Benefits. Certificates must reference the NAIC number of the issuing company, policy number, effective dates of coverage, policy limits consistent with Schedule A and the Agreement requirements, name the Additional Insureds, and shall name the Fund as the Certificate Holder.

d. **Primary Coverage.** The liability and protective policies of insurance shall provide primary and non-contributory coverage to the Additional Insureds required in Section 5.06(2)(h) below for any claim arising from the Contractor's work under the Agreement, or because of the Contractor's activities. Any other insurance maintained by the Fund or Additional Insureds shall be in excess of and shall not contribute to the Contractor's insurance or subcontractor's insurance, regardless of the "other insurance" clause contained in the Fund's or Additional Insured's policy of insurance, if any. A copy of the endorsement reflecting this requirement may be requested by the Fund.

e. **Policy Renewal/Expiration.** Unless otherwise agreed to in writing by the Fund, all insurance policies must have a policy period of at least one year. Not less than five (5) days prior to the expiration date or renewal date of the policy for insurance, the Contractor shall supply the Fund with updated replacement certificates of insurance and required endorsements. The Contractor shall give written notice to the Fund of any letter or notification that cancels, materially changes, or non- renews the policy and the 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.

Unless otherwise agreed to in writing by the Fund, policies shall be written to include a provision that the policy will not be canceled, materially changed, or not renewed without at least thirty (30) days' prior, written notice except for non-payment, in which case notice shall be provided as required by law from the insurance carrier to the Fund. In addition, if required by the Fund, the Contractor shall deliver to the Fund within three (3) business days of such request a copy of any or all certificates of insurance and required endorsements not previously provided.

If, at any time during the Agreement, the Fund determines that the insurance as required is not in effect as per the terms of the Agreement, or proof thereof is not provided to the Fund, or the Contractor has otherwise failed to strictly adhere to the provisions of this Article, the Fund may withhold further Agreement payments and shall have the option 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..

With exception of the A.M. Best rating requirements, if at any time the coverage provisions and limits of the policies of insurance required herein do not meet the provisions and limits set forth in Schedule A and the Agreement, the Contractor shall immediately cease work on the project site. Further, the Contractor will not be allowed access to the project site without providing proof of proper insurance. The Contractor shall not resume work on the project until permitted to do so by the Fund. Any delay or time lost as a result of the Contractor not having insurance or providing proof thereof as required by this Article and the Agreement shall not give rise to a delay claim or any other claim by the Contractor against the Fund. If required by the Fund, the Contractor shall deliver to the Fund within fifteen (15) business days of such request, full and complete copies of any or all policies of insurance and endorsements relating to the project that were not previously provided, certified by the insurance carrier as true and complete.

f. **Self-Insured Retention / Deductibles.** Certificates must disclose any Deductible, Self-Insured Retention, Aggregate Limit or any exclusion to the policy that materially changes the coverage required by the Agreement, and Deductibles or Self-Insured Retentions above $25,000 shall be subject to approval from the Fund. The Contractor shall be solely responsible for all claim expenses and loss payments within the Deductible or Self-Insured Retention.

g. **Subcontractors.** Should the Contractor engage subcontractors, the Contractor shall impose on those entities the general insurance requirements of this Article and the Agreement. Required insurance limits shall be determined commensurate with the work of the subcontractor. The Contractor shall maintain the subcontractor certificates of insurance and required endorsements on file which shall be delivered to the Fund within three (3) business days of such request. If required by the Fund, the Contractor shall deliver to the Fund within fifteen (15) business days of such request, full and complete

copies of any or all subcontractor policies of insurance and endorsements relating to the project that were not previously provided, certified by the insurance carrier as true and complete.

h. **Additional Insureds**. The Contractor shall cause to be included in each of the liability insurance policies coverage for on-going and completed operations naming as Additional Insureds, The People of the State of New York, the State University of New York, the Dormitory Authority of the State of New York, the Fund, other such entities as named in Schedule A, and their officers, agents, and employees ("Additional Insureds"). An Additional Insured Endorsement evidencing such coverage shall be provided to the Fund prior to the commencement of the Agreement. Additional Insured protection afforded must contemplate on-going and completed operations, and the additional insured protection for products/completed operations must remain in place for three years after Final Acceptance. For Contractors who have Self-Insured Retention, the Contractor shall be obligated to defend and indemnify the above-named Additional Insureds with respect to Commercial General Liability insurance and Business Automobile Liability insurance, in the same manner that the Contractor would have been required to pursuant to this Article had the Contractor obtained such insurance policies.

i. **Waiver of Subrogation.** Unless otherwise agreed to in writing by the Fund, with the exception of Disability policies, all policies of insurance must be endorsed to provide that there shall be no right of subrogation against the State of New York, the State University of New York, the Dormitory Authority of the State of New York, the Fund, the Additional Insureds, and their officers, agents and employees. To the extent that any of the policies of insurance prohibit such a waiver of subrogation, the Contractor shall secure the necessary permission to make this waiver.

(3) Specific Coverage

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

a. **Commercial General Liability Insurance.** A Commercial General Liability ("CGL") 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/ subcontractors, blanket contractual liability including tort liability of another assumed in contract, liability arising from all work and operations under the Agreement, defense and indemnification obligations, including those assumed under the Agreement, cross liability coverage for Additional Insureds, products/completed operations for a term no less than three years commencing upon Final Acceptance, explosion, collapse, and underground hazards, contractor means and methods, and liability resulting from Section 240 or Section 241 of the NYS Labor Law. Such policy shall be written on ISO Occurrence form CG 00 01 or a substitute form that is acceptable to the Fund, providing equivalent coverage.

The General Aggregate limit included in the CGL insurance shall apply separately on a per project basis at the limits set forth herein in Schedule A.

Insurance policies that remove or restrict blanket contractual liability located in the "insured contract" definition (as stated in Section V, Number 9, Item f in the ISO CGL policy) so as to limit coverage against claims that arise out of the work under the Agreement, or that remove or modify the "insured contract" exception to the employers liability exclusion, or that do not cover the Additional Insureds for claims involving injury to employees of the Named Insured or subcontractors, are not acceptable.

In the event any work under the Agreement involves activity on or within 50 ft. of railroad property or a railroad right-of-way or requires entrance upon a railroad property or railroad right-of-way, or requires an assignment of a Railroad employee, any exclusion for such work must be deleted. In addition, the Contractor shall otherwise fully comply with Section 5.06 (3)h below. For purposes of this paragraph, a subway is also a railroad.

b. **Comprehensive Business Automobile Liability Insurance.** A Commercial Automobile Liability insurance policy at the limits set forth herein in Schedule A covering liability arising out of the use of any motor vehicle in connection with the Agreement, 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 Agreement

involves the removal of hazardous waste from the project site or otherwise transporting Hazardous Materials, pollution liability coverage for covered autos shall be provided.

c. **Workers' Compensation.** New York State Workers' Compensation (including occupational disease) and Employer's Liability insurance coverage during the life of the Agreement for the benefit of the Contractor's and its subcontractors' employees as are required to be covered by the New York State Workers' Compensation Law.

   In the event any of the work under the Agreement involves activity on or near a shoreline or on or near navigable waterways or when any part of the work under the Agreement is connected to water related activities, an endorsement to the Workers' Compensation policy or the Protection & Indemnity policy providing coverage for all of the Contractor's and its subcontractors' employees under the Jones Act and the US Longshore and Harbor Workers' Compensation Act will be required and shall be delivered to the Fund within three (3) business days of such request. A waiver of subrogation in favor of the Additional Insureds must be included on the policy. In addition, the Contractor shall otherwise fully comply with Section 5.06(3)g below.

   Evidence of Workers' Compensation and Employer's Liability coverage must be provided to the Fund on forms specified by the Chairman of the New York State Workers' Compensation Board.

d. **Disability Benefits.** Disability coverage during the life of the Agreement for the benefit of the Contractor's and its subcontractors' employees as are required to be covered by the New York State Disability Benefits Law.

   Evidence of New York State Disability Benefits coverage must be provided to the Fund on forms specified by the Chairman of the New York State Workers' Compensation Board.

e. **Umbrella and Excess Liability.** When the limits of the CGL, Auto, and/or Employers Liability policies procured are insufficient to meet the limits specified in Schedule A, 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 Insureds shall be considered in 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.

f. **Contractor's Pollution Liability.** If the Agreement involves abatement, handling, removal, repair, replacement, enclosure, encapsulation and/or disposal of any pollutants, which includes but is not limited to, petroleum, petroleum products, Hazardous Materials or substances including asbestos, lead, mercury, PCBs, fungus and those as defined by applicable State and federal laws and regulations (collectively referred to as "Hazardous Activities"), the Contractor shall procure, or otherwise obtain through an approved subcontractor, and maintain in full force and effect throughout the term of the Agreement, from Notice to Proceed and for three years after Final Acceptance, Contractor's Pollution Liability with limits as set forth in Schedule A, providing coverage for bodily injury and property damage, including loss of use of damaged property or of property that has not been physically injured. Such policy shall provide coverage for actual, alleged or threatened emission, discharge, dispersal, seepage, release or escape of pollutants, including any loss, cost or expense incurred as a result of any cleanup of pollutants or in the investigation, settlement or defense of any claim, suit, or proceedings against the Fund or Additional Insureds arising from the Contractor's or its subcontractors' work under the Agreement.

   In addition, in the event the Contractor or any subcontractor is engaged in Hazardous Activities related to the Agreement, the Contractor or subcontractor shall, to the fullest extent permitted by law, hold harmless and indemnify the Additional Insureds and 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.

g. **Marine General Liability, Protection & Indemnity, Hull & Machinery, Jones Act and United States Longshore and Harbor Workers' Act Coverage.** In the event any of the work under

the Agreement involves activity on or near a shoreline or on or near navigable waterways or when any part of the work under the Agreement is connected to water related activities (collectively referred to as "Marine Operations"), Marine General Liability, Protection & Indemnity and Hull and Machinery coverage is required. Hull and Machinery coverage shall be provided for the total value of the watercraft and equipment used. The Contractor shall obtain Marine General Liability and Protective and Indemnity Liability Insurance for all Marine Operations relating to the Agreement at the limits set forth herein in Schedule A. Any endorsements that eliminate or minimize coverage for claims related to the imposition of New York Labor Law are prohibited. Certificate of Liability Insurance must be provided that certifies the required coverage is in place and must be accompanied by an ACORD 855 form or its equivalent.

h. **Railroad Protective Liability**. In the event any work under the Agreement involves activity on or within 50 ft. of railroad property or a railroad right-of-way, or requires entrance upon a railroad property or railroad right-of-way, or requires an assignment of a Railroad employee, the Contractor shall provide and maintain a Railroad Protective Liability ("RPL") Insurance Policy in the amount required by the respective railroad as set forth herein in Schedule A. For purposes of this paragraph, a subway is also a railroad.

   The RPL policy must name the Railroad as the Named Insured. No Additional Insureds may be listed on the RPL policy and the definition of "physical damage to property" must be amended to mean direct and accidental loss of or damage to "all property of any Named Insured and all property in any Named Insured's care, custody or control."

   Evidence of RPL must be provided to the Fund on a Certificate of Insurance, and a detailed Binder pending issuance of the policy, or on an ISO-RIMA or equivalent form approved by the Railroad and meet any other requirements as specified by the Railroad and/or the Fund."

Section 5.07 Builder's Risk

(1) The Fund shall, except as otherwise specified in the Agreement, beginning with the Notice to Proceed and at all times during construction and until Substantial Completion, procure and maintain Builder's Risk insurance (the "BRI") at the sole cost and expense of the Fund. The Contractor and subcontractors will be provided coverage under the BRI for the Contractor's work under the Agreement. The Fund shall, at the Fund's discretion, have the sole authority to adjust and to settle any loss or claim under the BRI. Reimbursement for loss, if any, shall be made payable to the Fund.

(2) BRI coverage shall also apply to materials and equipment stored offsite as defined under the terms of the Contract, the coverage shall include a broad form extended coverage endorsement in an amount equal to 100 percent of the value thereof, which coverage shall be maintained until said materials and equipment have been incorporated into the Project.

(3) The Contractor, at its sole cost and expense, shall be responsible to fully cooperate with the Fund and the BRI insurer by timely providing all necessary information and documentation to permit prompt reporting of any loss or claim to the BRI insurer and/or its representatives and by furnishing the Fund and/or the BRI insurer with all necessary details relating to any occurrence of loss and/or claim, the amount thereof, and by further participating in any investigation, proceedings, or otherwise, as may be reasonably requested in connection therewith. In the event the Contractor fails to fully and adequately take such action, the Contractor shall indemnify and save the Fund harmless from any and all costs, charges, expenses and liabilities incurred by the Fund as a result 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 Article, 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.

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

(5) The procurement and maintenance of the BRI shall in no way be construed or be deemed to relieve the Contractor from any of the obligations and risks imposed upon it by the Agreement or to be a limitation on the nature or extent of such obligations and risks nor limit Contractor's liability for damages and/or losses to the project."

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: Harry McLellan, 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 Contractor. 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.

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

STATE UNIVERSITY CONSTRUCTION FUND

By _____

Title _____

Name _____

«Company_Name»

By _____

Date: _____

SUCF Project No.

If Corporation, affix Corporate Seal

Contract No.

ACKNOWLEDGMENTS

(ACKNOWLEDGMENT BY INDIVIDUAL)

STATE OF)
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)
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)
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 or the State University Construction Fund, whether a contractor, licensor, licensee, lessor, lessee or any other party; the State University Construction Fund shall hereinafter be referred to as the "Fund"):

1. EXECUTORY CLAUSE. In accordance with Section 41 of the State Finance Law, the State and the Fund 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 or the Fund'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 Fund retains its right to approve an assignment and to require that any Contractor demonstrate its responsibility to do business with the Fund. The Contractor may, however, assign its right to receive payments without the Fund'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. (a) In accordance with Section 112 of the State Finance Law and Section 373 of the Education Law, the State Comptroller's approval is required for the following contracts: (i) goods, services, construction and construction-related services which exceed $75,000 and (ii) purchases utilizing an Office of General Services centralized contract which exceed $200,000;

(b) If this contract exceeds the threshold amounts listed above in Paragraph 3(a), or, if this is an amendment for any amount to a contract which, as so amended, exceeds said threshold amounts, or if, by this contract, the State or the Fund agrees to give something other than money when the value or reasonably estimated value of such consideration exceeds $25,000, it shall not be valid, effective or binding upon the the Fund or the State and the Fund and the State shall bear no liability, until it has been approved by the State Comptroller or the pertinent pre-audit reviw period has elapsed 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, citizenship or immigration status, sexual orientation, gender identity or expression, military status, sex, disability, predisposing genetic characteristics, familial status, marital status, or domestic violence victim status or because the individual has opposed any practices forbidden under the Human Rights Law or has filed a complaint, testified, or assisted in any proceeding under the Human Rights Law. Furthermore, in accordance with Section 220-e of the Labor Law, if this is a contract for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this contract shall be performed within the State of New York, Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex, or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. If this is a building service contract as defined in Section 230 of the Labor Law, then, in

accordance with Section 239 thereof, Contractor agrees that neither it nor its subcontractors shall by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. Contractor is subject to fines of $50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this contract and forfeiture of all moneys due hereunder for a second or subsequent violation.

6. WAGE AND HOURS PROVISIONS. If this is a public work contract covered by Article 8 of the Labor Law or a building service contract covered by Article 9 thereof, neither Contractor's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-a of Section 220 of the Labor Law shall be a condition precedent to payment by the Fund of any Fund 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 Fund 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 all common law, equitable and statutory rights of set-off. These rights shall include, but not be limited to, the State's and the Fund's option to withhold for the purposes of set-off any moneys due to the Contractor under this contract up to any amounts due and owing to the State 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 relative thereto. The State and the Fund shall exercise their 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 and any other agencies involved in this contract, shall have access to the Records during normal business hours at an office of the Contractor within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. The Fund 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 Fund 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 Fund or the State is mandatory. The principal purpose for which the information is collected is to enable the State to identify individuals, businesses and others who have been delinquent in filing tax returns or may have understated their tax liabilities and to generally identify persons affected by the taxes administered by the Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law. (2) The personal information is requested by the purchasing unit of the Fund contracting to purchase the goods or services or lease the real or personal property covered by this contract or lease. The information is maintained in the Statewide Financial System by the Vendor Management Unit within the Bureau of State Expenditures, Office of the State Comptroller, 110 State Street, Albany, New York 12236.

12. EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITIES AND WOMEN. In accordance with Section 312 of the Executive Law and 5 NYCRR Part 143, if this contract is: (i) a written agreement or purchase order instrument, providing for a total expenditure in excess of $25,000.00, whereby a contracting agency is committed to expend or does expend funds in return for labor, services, supplies, equipment, materials or any combination of the foregoing, to be performed for, or rendered or furnished to the 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 Fund's request, 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 and the Fund 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 Section 165 of the State Finance Law. Any such use must meet with the approval of the State and the Fund; otherwise, the bid may not be considered responsive. Under bidder certifications, proof of qualification for exemption will be the responsibility of the Contractor to meet with the approval of the State.

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

20. OMNIBUS PROCUREMENT ACT OF 1992. It is the policy of New York State to maximize opportunities for the participation of New York State

business enterprises, including minority- and women-owned business enterprises as bidders, subcontractors and suppliers on its procurement contracts.

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

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

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

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

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

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

(b) The Contractor has complied with the Federal Equal Employment 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 Fund 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 of 1994 and 2000 amendments (Chapter 684 and Chapter 383, respectively, codified in State Finance Law § 165(6) and Public Authorities Law § 2879(5))) require that they be denied contracts which they would otherwise obtain. NOTE: As of May 2023, the list of discriminatory jurisdictions subject to this provision includes the states of South Carolina, Alaska, West Virginia, Wyoming, Louisiana and Hawaii.

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

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

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

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

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

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

SCHEDULE I Unit Prices

Refer to Section 4.04 of the Agreement for additional information.

Work or Material Description	Amount in Words	Amount in Figures

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.

Work or Material Description	Amount in Words	Amount in Figures

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)

SUNY State University Construction Fund

Insurance Requirements
Schedule A

Project: 291036 - 02- Rehab Administration Building at the Heritage Site
Contract Type: Construction - Full Service

All certificate(s) of Insurance/Accord Form must be submitted pursuant to Contract Article 5.06 and include the following information:

- For each insurance certificate, the name and NAIC number of issuing company, number of policy, with effective dates and deductibles, if applicable
- Policy limits consistent with the requirements listed below
- Certificate must disclose the policies are on a primary and non-contributory basis
- The contract/project number assigned by the Fund
- Carriers must meet the following criteria:(1) AM Best Company rating of A- or greater, (2) financial score of VII or greater

	Policy Limits				
Insurance Type	**Per Occurrence**	**Per Aggregate**	**Products & CO**	**Minimum Limits and Special Conditions**	**Forms**
Worker's Compensation	As required by NYS			Statutory per New York State laws without regard to jurisdiction. Waiver of Subrogation is required.	Form C105.2 (Certificate of NYS Workers' Compensation Coverage) or the U-26.3 (State Insurance Fund Certificate)
Disability	As required by NYS			Statutory per New York State laws without regard to jurisdiction.	Form DB120.1 (Certificate of Insurance Coverage under the NYS Disability Benefits Law).
General Liability	2,000,000	2,000,000	2,000,000	General Aggregate limit must apply per project.	Accord 25 and Certificate of Liability Addendum Acord 855
Automobile	1,000,000				
Builder's Risk	To Be Determined				

	Contract Additional Insurance				
Insurance Type	**Per Occurrence**	**Per Aggregate**	**Products & CO**	**Minimum Limits and Special Conditions**	**Forms**
Pollution (Asbestos)	1,000,000	2,000,000			Accord 25 certificate and endorsements the endorsement may be replaced with the CG 20 38 or its equivalent.

State University Construction Fund

Insurance Requirements
Schedule A

Project: 291036 - 02- Rehab Administration Building at the Heritage Site
Contract Type: Construction - Full Service

Additional Insured for each liability insurance policy, including coverage for on-going and completed operations:

- The People of the State of New York
- The State University of New York
- The Dormitory Authority of the State of New York
- The State University Construction Fund
- The Campus
- If applicable, Construction Manager
- If applicable, Railroad
- The officers, agents, and employees of those listed above
- If applicable, non-state landowner impacted by this work

Guidance to Submit Insurance Certificates

- Certificates must be signed.
- Accord forms must be emailed directly by the agent or carrier.
- Email certificates and other insurance related correspondence to sucf.insurance@suny.edu.
- Include in the subject line the SUCF contract number or project number.
- Please do not mail additional copies to the Fund.

Report Notes:

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, convenants 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 convenants 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

00 73 43 Wage Rate Requirements

Wage Rates and Supplements

The following are the rates of wages and supplements determined by the Industrial Commissioner of the State of New York as prevailing in the locality of the site at which the work will be performed:

*Effective 7/1/01, NYSDOL stopped providing individually printed copies of the **updated** schedules on existing contracts. Updated schedules may be obtained on the NYSDOL website:*

https://dol.ny.gov/

Kathy Hochul, Governor

Roberta Reardon, Commissioner

State Univ Construction Fund

Nicholas Wan
115 5th Ave
New York NY 10003

Schedule Year	2023 through 2024
Date Requested	04/17/2024
PRC#	2024004579

Location	Purchase College
Project ID#	SUCF # 291306-02
Project Type	Primarily envelope repairs, stormwater management and site work, and partial repairs to the interior.

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 2023 through June 2024. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website www.labor.ny.gov. Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

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

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

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

NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: _____ Date Cancelled: _____

Name & Title of Representative: _____

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

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

Introduction

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

Responsibilities of the Department of Jurisdiction

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

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

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

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

Both the PW 16 and PW 200 forms are available for completion online.

Hours

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

Wages and Supplements

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

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

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

Payrolls and Payroll Records

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

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

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

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

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

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

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

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

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

Withholding of Payments

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

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

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

Summary of Notice Posting Requirements

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

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

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

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

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

Apprentices

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

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

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

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

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

Interest and Penalties

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

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

Debarment

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

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

Criminal Sanctions

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

Discrimination

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

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

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

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

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

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

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

Workers' Compensation

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

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

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

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

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

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

Unemployment Insurance

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

Kathy Hochul, Governor

Roberta Reardon, Commissioner

State Univ Construction Fund

Nicholas Wan
115 5th Ave
New York NY 10003

Schedule Year 2023 through 2024
Date Requested 04/17/2024
PRC# 2024004579

Location Purchase College
Project ID# SUCF # 291306-02
Project Type Primarily envelope repairs, stormwater management and site work, and partial repairs to the interior.

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: $_____

Approximate Starting Date: ____/____/____

Approximate Completion Date: ____/____/____

Contract Type:
[ ] (01) General Construction
[ ] (02) Heating/Ventilation
[ ] (03) Electrical
[ ] (04) Plumbing
[ ] (05) Other : _____

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

Social Security Numbers on Certified Payrolls:

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

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

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

Construction industry employers must post the "Construction Industry Fair Play Act" notice in a prominent and accessible place on the job site. Failure to post the notice can result in penalties of up to $1,500 for a first offense and up to $5,000 for a second offense. The posting is included as part of this wage schedule. Additional copies may be obtained from the NYS DOL website, https://dol.ny.gov/public-work-and-prevailing-wage
If you have any questions concerning the Fair Play Act, please call the State Labor Department toll-free at 1-866-435-1499 or email us at: dol.misclassified@labor.ny.gov .

Worker Notification: (Labor Law §220, paragraph a of subdivision 3-a)

Effective June 23, 2020

This provision is an addition to the existing wage rate law, Labor Law §220, paragraph a of subdivision 3-a. It requires contractors and subcontractors to provide written notice to all laborers, workers or mechanics of the *prevailing wage and supplement rate* for their particular job classification *on each pay stub**. It also requires contractors and subcontractors to *post a notice* at the beginning of the performance of every public work contract *on each job site* that includes the telephone number and address for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing rate of wages and/or supplements for his/her job classification. The required notification will be provided with each wage schedule, may be downloaded from our website *www.labor.ny.gov* or be made available upon request by contacting the Bureau of Public Work at 518-457-5589. *In the event the required information will not fit on the pay stub, an accompanying sheet or attachment of the information will suffice.

(12.20)

To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

Budget Policy & Reporting Manual

B-610

Public Work Enforcement Fund

effective date December 7, 2005

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1. Purpose and Scope:

This Item describes the Public Work Enforcement Fund (the Fund, PWEF) and its relevance to State agencies and public benefit corporations engaged in construction or reconstruction contracts, maintenance and repair, and announces the recently-enacted increase to the percentage of the dollar value of such contracts that must be deposited into the Fund. This item also describes the roles of the following entities with respect to the Fund:

- New York State Department of Labor (DOL),
- The Office of the State of Comptroller (OSC), and
- State agencies and public benefit corporations.

2. Background and Statutory References:

DOL uses the Fund to enforce the State's Labor Law as it relates to contracts for construction or reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law. State agencies and public benefit corporations participating in such contracts are required to make payments to the Fund.

Chapter 511 of the Laws of 1995 (as amended by Chapter 513 of the Laws of 1997, Chapter 655 of the Laws of 1999, Chapter 376 of the Laws of 2003 and Chapter 407 of the Laws of 2005) established the Fund.

3. Procedures and Agency Responsibilities:

The Fund is supported by transfers and deposits based on the value of contracts for construction and reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law, into which all State agencies and public benefit corporations enter.

Chapter 407 of the Laws of 2005 increased the amount required to be provided to this fund to .10 of one-percent of the total cost of each such contract, to be calculated at the time agencies or public benefit corporations enter into a new contract or if a contract is amended. The provisions of this bill became effective August 2, 2005.

To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

OSC will report to DOL on all construction-related ("D") contracts approved during the month, including contract amendments, and then DOL will bill agencies the appropriate assessment monthly. An agency may then make a determination if any of the billed contracts are exempt and so note on the bill submitted back to DOL. For any instance where an agency is unsure if a contract is or is not exempt, they can call the Bureau of Public Work at the number noted below for a determination. Payment by check or journal voucher is due to DOL within thirty days from the date of the billing. DOL will verify the amounts and forward them to OSC for processing.

For those contracts which are not approved or administered by the Comptroller, monthly reports and payments for deposit into the Public Work Enforcement Fund must be provided to the Administrative Finance Bureau at the DOL within 30 days of the end of each month or on a payment schedule mutually agreed upon with DOL.

Reports should contain the following information:

- Name and billing address of State agency or public benefit corporation;
- State agency or public benefit corporation contact and phone number;
- Name and address of contractor receiving the award;
- Contract number and effective dates;
- Contract amount and PWEF assessment charge (if contract amount has been amended, reflect increase or decrease to original contract and the adjustment in the PWEF charge); and
- Brief description of the work to be performed under each contract.

Checks and Journal Vouchers, payable to the "New York State Department of Labor" should be sent to:

Department of Labor
Administrative Finance Bureau-PWEF Unit
Building 12, Room 464
State Office Campus
Albany, NY 12226

Any questions regarding billing should be directed to NYSDOL's Administrative Finance Bureau-PWEF Unit at (518) 457-3624 and any questions regarding Public Work Contracts should be directed to the Bureau of Public Work at (518) 457-5589.

NEW YORK STATE OF OPPORTUNITY. Department of Labor

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)

WE ARE YOUR DOL

NEW YORK STATE Department of Labor

New York State Department of Labor
Bureau of Public Work

Attention Employees

THIS IS A:

PUBLIC WORK PROJECT

If you are employed on this project as a **worker, laborer, or mechanic** you are entitled to receive the **prevailing wage and supplements rate** for the classification at which you are working.

Your pay stub and wage notice received upon hire must clearly state your wage rate and supplement rate.

Chapter 629 of the Labor Laws of 2007:

These wages are set by law and must be posted at the work site. They can also be found at: https://dol.ny.gov/bureau-public-work

If you feel that you have not received proper wages or benefits, please call our nearest office.*

Albany	(518) 457-2744	Patchogue	(631) 687-4882
Binghamton	(607) 721-8005	Rochester	(585) 258-4505
Buffalo	(716) 847-7159	Syracuse	(315) 428-4056
Garden City	(516) 228-3915	Utica	(315) 793-2314
New York City	(212) 932-2419	White Plains	(914) 997-9507
Newburgh	(845) 568-5287		

* For New York City government agency construction projects, please contact the Office of the NYC Comptroller at (212) 669-4443, or www.comptroller.nyc.gov – click on Bureau of Labor Law.

Contractor Name: _____

Project Location: _____

Requirements for OSHA 10 Compliance

Article 8 §220-h requires that when the advertised specifications, for every contract for public work, is $250,000.00 or more the contract must contain a provision requiring that every worker employed in the performance of a public work contract shall be certified as having completed an OSHA 10 safety training course. The clear intent of this provision is to require that all employees of public work contractors, required to be paid prevailing rates, receive such training “prior to the performing any work on the project.”

The Bureau will enforce the statute as follows:

All contractors and sub contractors must attach a copy of proof of completion of the OSHA 10 course to the first certified payroll submitted to the contracting agency and on each succeeding payroll where any new or additional employee is first listed.

Proof of completion may include but is not limited to:

- Copies of bona fide course completion card (*Note: Completion cards do not have an expiration date.)*
- Training roster, attendance record of 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 requirement s 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 that six (6) years, contemporaneous, true, and accurate payroll records.

Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury.

Paid Holidays

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

Overtime

At a minimum, all work performed on a public work project in excess of eight hours in any one day or more than five days in any workweek is overtime. However, the specific overtime requirements for each trade or occupation on a public work project may differ. Specific overtime requirements for each trade or occupation are contained in the prevailing rate schedules.

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays.

The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Supplemental Benefits

Particular attention should be given to the supplemental benefit requirements. Although in most cases the payment or provision of supplements is straight time for all hours worked, some classifications require the payment or provision of supplements, or a portion of the supplements, to be paid or provided at a premium rate for premium hours worked. Supplements may also be required to be paid or provided on paid holidays, regardless of whether the day is worked. The Overtime Codes and Notes listed on the particular wage classification will indicate these conditions as required.

Effective Dates

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. The rate listed is valid until the next effective rate change or until the new annual determination which takes effect on July 1 of each year. All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. If you have any questions please contact the Bureau of Public Work or visit the New York State Department of Labor website (www.labor.ny.gov) for current wage rate information.

Apprentice Training Ratios

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.

Title (Trade)	Ratio
Boilermaker (Construction)	1:1,1:4
Boilermaker (Shop)	1:1,1:3
Carpenter (Bldg.,H&H, Pile Driver/Dockbuilder)	1:1,1:4
Carpenter (Residential)	1:1,1:3
Electrical (Outside) Lineman	1:1,1:2
Electrician (Inside)	1:1,1:3
Elevator/Escalator Construction & Modernizer	1:1,1:2
Glazier	1:1,1:3
Insulation & Asbestos Worker	1:1,1:3
Iron Worker	1:1,1:4
Laborer	1:1,1:3
Mason	1:1,1:4
Millwright	1:1,1:4
Op Engineer	1:1,1:5
Painter	1:1,1:3
Plumber & Steamfitter	1:1,1:3
Roofer	1:1,1:2
Sheet Metal Worker	1:1,1:3
Sprinkler Fitter	1:1,1:2

If you have any questions concerning the attached schedule or would like additional information, please contact the nearest BUREAU of PUBLIC WORK District Office or write to:

New York State Department of Labor
Bureau of Public Work
State Office Campus, Bldg. 12
Albany, NY 12226

District Office Locations:	Telephone #	FAX #
Bureau of Public Work - Albany	518-457-2744	518-485-0240
Bureau of Public Work - Binghamton	607-721-8005	607-721-8004
Bureau of Public Work - Buffalo	716-847-7159	716-847-7650
Bureau of Public Work - Garden City	516-228-3915	516-794-3518
Bureau of Public Work - Newburgh	845-568-5287	845-568-5332
Bureau of Public Work - New York City	212-932-2419	212-775-3579
Bureau of Public Work - Patchogue	631-687-4882	631-687-4902
Bureau of Public Work - Rochester	585-258-4505	585-258-4708
Bureau of Public Work - Syracuse	315-428-4056	315-428-4671
Bureau of Public Work - Utica	315-793-2314	315-793-2514
Bureau of Public Work - White Plains	914-997-9507	914-997-9523
Bureau of Public Work - Central Office	518-457-5589	518-485-1870

Westchester County General Construction

Boilermaker — 04/01/2024

JOB DESCRIPTION Boilermaker **DISTRICT** 4

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

WAGES

Per Hour:	07/01/2023	01/01/2024
Boilermaker	$ 65.88	$ 67.38
Repairs & Renovations	65.88	67.38

Repairs & Renovation: Includes Repairing, Renovating replacement of parts to an existing unit(s).

SUPPLEMENTAL BENEFITS
Per Hour:

Boilermaker	33.5% of hourly Wage Paid	33.5% of Hourly Wage Paid
Repair $ Renovations	+ $ 26.49	+ $26.85

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

Repairs & Renovation Includes replacement of parts and repairs & renovation of existing unit.

OVERTIME PAY
See (*B, O, **U) on OVERTIME PAGE
Note:* Includes 9th & 10th hours, double for 11th or more.
** Labor Day ONLY, if worked.

Repairs & Renovation see (B,E,Q) on OT Page

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 12, 15, 25, 26, 29) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage per hour:
(1/2) Year Terms at the following percentage of Boilermaker's Wage

1st	2nd	3rd	4th	5th	6th	7th
65%	70%	75%	80%	85%	90%	95%

Supplemental Benefits Per Hour:

Apprentice(s)	33.5% of Hourly Wage Paid Plus Amount Below	33.5% of Hourly Wage Paid Plus Amount Below
1st Term	$ 20.12	$ 20.36
2nd Term	21.03	21.28
3rd Term	21.95	22.22
4th Term	22.83	23.12
5th Term	23.76	24.07
6th Term	24.67	25.00
7th Term	25.58	25.93

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

4-5

Carpenter — 04/01/2024

JOB DESCRIPTION Carpenter **DISTRICT** 8

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

WAGES
Per hour: 07/01/2023

Piledriver	$ 59.16 + 9.79*
Dockbuilder	$ 59.16 + 9.79*

*This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 45.34

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
$25.60 + 5.30*	$31.20 + 5.30*	$39.58 + 5.30*	$47.97 + 5.30*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:

All Terms: $ 31.83

8-1556 Db

Carpenter — 04/01/2024

JOB DESCRIPTION Carpenter **DISTRICT** 8

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

WAGES
Per hour: 07/01/2023

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:
$ 39.45

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

HOLIDAY
Paid: See (18, 19) on HOLIDAY PAGE.

Paid for 1st & 2nd yr.
Apprentices See (5,6,11,13,16,18,19,25)
Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wage per hour - (1) year terms:

1st	2nd	3rd	4th
$ 25.20	$ 28.20	$ 32.45	$ 40.33

+ 1.85*	+ 2.35*	+ 2.85*	+ 3.85*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:

1st	2nd	3rd	4th
$ 15.22	$ 16.22	$ 19.32	$ 20.32

8-2287

Carpenter — 04/01/2024

JOB DESCRIPTION Carpenter **DISTRICT** 8

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

WAGES
Per Hour: 07/01/2023

Marine Construction:

Marine Diver	$ 74.03
	+ 9.79*
Marine Tender	$ 53.57
	+ 9.79*

*This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS
Per Hour:

Journeyworker	$ 45.34

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

HOLIDAY
Paid: See (18, 19) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 13, 16, 18, 19, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:
One (1) year terms.

1st year	$ 25.60
	+ 5.30*
2nd year	31.20
	+ 5.30*
3rd year	39.58
	+ 5.30*
4th year	47.97
	+ 5.05*

*This portion is not subject to overtime premiums

Supplemental Benefits
Per Hour:

All terms	$ 31.83

8-1456MC

Carpenter — 04/01/2024

JOB DESCRIPTION Carpenter **DISTRICT** 8

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

WAGES
Per hour: 07/01/2023

Building
Millwright $ 58.70
+ 12.62*

*This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS
Per hour:

Millwright $ 44.31

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.
$31.74	$37.19	$42.64	$53.54
+ 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.
$29.81	$32.34	$35.52	$39.94

8-740.1

Carpenter — 04/01/2024

JOB DESCRIPTION Carpenter **DISTRICT** 8

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

WAGES
Per Hour:
07/01/2023

Timberman $ 54.05
+ 10.26*

*This portion not subject to overtime premiums

SUPPLEMENTAL BENEFITS
Per Hour:
07/01/2023

$ 44.55

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
$23.42	$28.53	$36.18	$43.84
+ 5.55*	+ 5.55*	+ 5.55*	+ 5.55*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:
All terms $ 31.54

8-1556 Tm

Carpenter 04/01/2024

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Westchester

PARTIAL COUNTIES
Orange: South of but including the following, Waterloo Mills, Slate Hill, New Hampton, Goshen, Blooming Grove, Mountainville, east to the Hudson River.
Putnam: South of but including the following, Cold Spring, TompkinsCorner, Mahopac, Croton Falls, east to Connecticut border.
Suffolk: West of Port Jefferson and Patchogue Road to Route 112 to the Atlantic Ocean.

WAGES
Per hour: 07/01/2023

Core Drilling:
Driller $ 43.88
+ 2.50*

Driller Helper $ 34.47
+ 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 $ 28.85

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 04/01/2024

JOB DESCRIPTION Carpenter - Building / Heavy&Highway **DISTRICT** 11

ENTIRE COUNTIES
Putnam, Rockland, Westchester

WAGES
WAGES:(per hour)
Applies to CAPRENTER BUILDING/HEAVY & HIGHWAY/TUNNEL:

	07/01/2023	07/01/2024 Additional	07/01/2025 Additional	07/01/2026 Additional
Base Wage	$ 39.80 +$6.71*	$ 1.25**	$ 1.25**	$ 1.25**

*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 $ 33.22

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
$ 19.90	$ 23.88	$ 25.87	$ 27.86	$ 31.84
+3.58*	+3.58*	+3.58*	+3.58*	+3.58*

*For all hours paid straight or premium

SUPPLEMENTAL BENEFITS per hour:

All terms $ 16.27

11-279.1B/HH

Electrician — 04/01/2024

JOB DESCRIPTION Electrician **DISTRICT** 9

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

WAGES

Per hour:	07/01/2023	03/07/2024
Service Technician	$ 36.40	$ 37.40

Service and Maintenance on Alarm and Security Systems.

Maintenance, repair and /or replacement of defective (or damaged) equipment on, but not limited to, Burglar - Fire - Security - CCTV - Card Access - Life Safety Systems and associated devices. (Whether by service contract of T&M by customer request.)

SUPPLEMENTAL BENEFITS

Per hour:		
Journeyworker:	$ 21.07	$ 21.85

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

HOLIDAY
Paid: See (5, 6, 11, 15, 16, 17, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 17, 25, 26) on HOLIDAY PAGE

9-3H

Electrician — 04/01/2024

JOB DESCRIPTION Electrician **DISTRICT** 8

ENTIRE COUNTIES
Westchester

WAGES

Per hour:	07/01/2023	04/18/2024	04/17/2025
*Electrician/A-Technician	$ 55.75	$ 56.75	$ 58.75

Teledata	55.75	56.75	58.75

*All new installations of wiring, conduit, junction boxes and light fixtures for projects with a base bid of more than $325,000. For projects with a base bid of $325,000 or less, see Maintenance and Repair rates.

Note: On a job where employees are required to work on bridges over navigable waters, transmission towers, light poles, bosun chairs, swinging scaffolds , etc. 40 feet or more above the water or ground or under compressed air, or tunnel projects under construction or where assisted breathing apparatus is required, they will be paid at the rate of time and one-half for such work except on normal pole line or building construction work.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker	$ 56.26	$59.39	$61.09

OVERTIME PAY

See (A, G, *J, P) on OVERTIME PAGE

*NOTE: Emergency work on Sunday and Holidays is at the time and one-half overtime rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wage rates:

	07/01/2023	04/18/2024	04/17/2025
1st term	$ 16.00	$16.00	$16.00
2nd term	17.00	17.00	17.00
3rd term	19.00	19.00	19.00
4th term	21.00	21.00	21.00
MIJ 1-12 months	26.50	26.50	26.50
MIJ 13-18 months	30.00	30.00	30.00

Supplemental Benefits per hour:

	07/01/2023	04/18/2024	04/17/2025
1st term	$ 11.63	$ 12.40	$ 12.72
2nd term	14.30	15.07	15.89
3rd term	15.62	16.40	17.23
4th term	16.95	17.73	18.57
MIJ 1-12 months	13.92	15.72	15.89
MIJ 13-18 months	14.33	16.17	16.29

8-3/W

Electrician — 04/01/2024

JOB DESCRIPTION Electrician **DISTRICT** 8

ENTIRE COUNTIES

Westchester

WAGES

Per hour

	07/01/2023	04/18/2024	04/17/2025
Electrician -M	$ 30.00	$ 30.00	$ 30.00
H - Telephone	30.00	30.00	30.00

All work with a base bid amount of $325,000 or less. Including repairs and /or replacement of defective electrical and teledata equipment, all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls, and washing and cleaning of foregoing fixtures.

*If the project exceeds $375,000 due to changes in the scope of work, an Electrician/A Technician must be part of the labor ratio.

SUPPLEMENTAL BENEFITS

	07/01/2023	04/18/2024	04/17/2025
Electrician & H - Telephone	$ 14.33	$ 16.17	$ 16.29

OVERTIME PAY

See (B, G, *J, P) on OVERTIME PAGE

*Note: Emergency work on Sunday and Holidays is at the time and one-half overtime rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

Elevator Constructor 04/01/2024

JOB DESCRIPTION Elevator Constructor **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

PARTIAL COUNTIES
Rockland: Entire County except for the Township of Stony Point
Westchester: Entire County except for the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES
Per hour:

	07/01/2023
Elevator Constructor	$ 77.49
Modernization & Service/Repair	$ 60.89

NOTE - The 'Employer Registration' (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30,2023 will expire within the granted time frame.

For Pre-Registered Projects 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. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per Hour:

Elevator Constructor	$ 45.574
Modernization & Service/Repairs	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
2nd & 3rd Term	36.024
4th & 5th Term	36.943
6th & 7th Term	38.448
8th & 9th Term	39.953

Modernization & Service/Repair	
1st Term	$ 0.00
2nd & 3rd Term	35.694
4th & 5th Term	36.525
6th & 7th Term	37.948
8th & 9th Term	39.38

Elevator Constructor — 04/01/2024

JOB DESCRIPTION Elevator Constructor **DISTRICT** 1

ENTIRE COUNTIES
Columbia, Dutchess, Greene, Orange, Putnam, Sullivan, Ulster

PARTIAL COUNTIES
Delaware: Towns of Andes, Bovina, Colchester, Davenport, Delhi, Harpersfield, Hemdon, Kortright, Meredith, Middletown, Roxbury, Hancock & Stamford
Rockland: Only the Township of Stony Point.
Westchester: Only the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES

Per Hour	07/01/2023	01/01/2024
Mechanic	$ 67.35	$ 70.15
Helper	70% of Mechanic Wage Rate	70% of Mechanic Wage Rate

NOTE - The "Employer Registration" (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30, 2023 will expire within the granted time frame.

For Pre-Registered Projects 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. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour

	07/01/2023	01/01/2024
Journeyperson/Helper	$ 37.335*	$ 37.885*

(*)Plus 6% of regular hourly if less than 5 years of service. Plus 8% of regular hourly rate if more than 5 years of service.

OVERTIME PAY
See (D, O) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 15, 16) on HOLIDAY PAGE
Overtime: See (5, 6, 15, 16) on HOLIDAY PAGE
Note: When a paid holiday falls on Saturday, it shall be observed on Friday. When a paid holiday falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES
Wages per hour:

0-6 mo*	6-12 mo	2nd yr	3rd yr	4th yr
50 %	55 %	65 %	70 %	80 %

(*)Plus 6% of the hourly rate, no additional supplemental benefits.

Supplemental Benefits per hour worked:

Same as Journeyperson/Helper

1-138

Glazier — 04/01/2024

JOB DESCRIPTION Glazier **DISTRICT** 8

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

WAGES

Per hour:	7/01/2023
Glazier & Glass Tinting	$ 61.64
*Scaffolding	65.64
Window Film	
**Repair & Maintenance	30.76

*Scaffolding includes swing scaffold, mechanical equipment, scissor jacks, man lifts, booms & buckets 30' or more, but not pipe scaffolding.

**Repair & Maintenance- All repair & maintenance work on a particular building whenever performed, where the total cumulative Repair & Maintenance contract value is under $184,000.

SUPPLEMENTAL BENEFITS

Per hour:	7/01/2023
Glazier & Glass Tinting	$ 40.20
Window Film Repair & Maintenance	23.19

OVERTIME PAY
See (B, E, Q, 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:

	7/01/2023
1st term	$ 21.93
2nd term	30.05
3rd term	39.95
4th term	48.97

Supplemental Benefits:
(Per hour)

1st term	$ 18.25
2nd term	25.97
3rd term	31.27
4th term	34.32

8-1087 (DC9 NYC)

Insulator - Heat & Frost — 04/01/2024

JOB DESCRIPTION Insulator - Heat & Frost **DISTRICT** 8

ENTIRE COUNTIES
Dutchess, Orange, Putnam, Rockland, Westchester

WAGES

Per hour:	07/01/2023	06/01/2024
Insulator	$ 59.25	+ $ 2.50
Discomfort & Additional Training**	62.31	+ $ 2.50
Fire Stop Work*	31.77	+ $ 2.50

* 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	$ 37.35

Discomfort & Additional Training	39.39
Fire Stop Work:	
Journeyworker	19.03

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
$ 31.77	$ 37.26	$ 42.76	$ 48.26

Discomfort & Additional Training Apprentices:

1st	2nd	3rd	4th
$ 33.30	$ 39.09	$ 44.90	$ 50.71

Supplemental Benefits paid per hour:

Insulator Apprentices:

1st term	$ 19.03
2nd term	22.69
3rd term	26.36
4th term	30.03

Discomfort & Additional Training Apprentices:

1st term	$ 20.06
2nd term	23.92
3rd term	27.78
4th term	31.66

8-91

Ironworker — 04/01/2024

JOB DESCRIPTION Ironworker **DISTRICT** 9

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

WAGES

Per Hour:	07/01/2023	01/01/2024 Additional
Stone Derrickmen Rigger	$ 72.90	+ $ 1.64
Stone Handset Derrickman	70.47	+ $ 1.11

SUPPLEMENTAL BENEFITS
Per hour:

Stone Derrickmen Rigger	$ 43.10
Stone Handset Derrickman	42.84

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
07/01/2023	$ 35.90	$ 51.53	$ 57.32	$ 63.11

Supplemental Benefits:
Per hour:

07/01/2023	22.11	32.58	32.58	32.58

Stone Handset:

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

	1st	2nd	3rd	4th
07/01/2023	34.56	49.75	55.33	60.90

Supplemental Benefits:
Per hour:

07/01/2023	22.10	32.46	32.46	32.46

9-197D/R

Ironworker — 04/01/2024

JOB DESCRIPTION Ironworker **DISTRICT** 4

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

WAGES
Per Hour:

	07/01/2023
Ornamental	$ 46.90
Chain Link Fence	46.90
Guide Rail	46.90

SUPPLEMENTAL BENEFITS
Per hour:
Journeyworker: $ 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

	07/01/2023
1st Term	$ 21.13
2nd Term	24.77
3rd Term	28.40
4th Term	32.06

Supplemental Benefits per hour:

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

4-580-Or

Ironworker — 04/01/2024

JOB DESCRIPTION Ironworker **DISTRICT** 4

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

WAGES
PER HOUR:

07/01/2023	01/01/2024	07/01/2024

Ironworker:			Additional
Structural Bridges Machinery	$ 57.20	$ 57.70	$ 1.75/Hr.*

(*)To be allocated at a later date.

SUPPLEMENTAL BENEFITS
PER HOUR PAID:

Journeyman	$ 87.35	$ 88.60

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	$ 29.73	$ 29.98
2nd	30.33	30.58
3rd - 6th	30.94	31.19

Supplemental Benefits
PER HOUR PAID:

All Terms	$ 60.69	$ 61.59

4-40/361-Str

Ironworker 04/01/2024

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:	07/01/2023
Reinforcing & Metal Lathing	$ 56.95
"Base" Wage	$ 55.20 plus $ 1.75

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

SUPPLEMENTAL BENEFITS

Per hour:	
Reinforcing & Metal Lathing	$ 42.72

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	$ 49.47
Double Time	$ 56.22

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	$ 28.38	$ 34.68	$ 37.18
"Base" Wage			
$ 21.00	$ 26.80	$ 33.10	$ 35.60
plus $1.55	plus $1.58	plus $1.58	plus $1.58

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

SUPPLEMENTAL BENIFITS
Per Hour:

1st term	2nd term	3rd term	4th Term
$ 18.17	$ 21.34	$ 22.00	$ 22.50

4-46Reinf

Laborer - Building — 04/01/2024

JOB DESCRIPTION Laborer - Building **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

WAGES

Per hour	07/01/2023	05/01/2024
Laborer	$ 40.05 plus $5.45**	+ $ 2.00
Laborer - Asbestos & Hazardous Materials Removal	$ 44.50*	+ $ 2.00

* 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:	07/01/2023
Journeyworker	$ 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	Level B	Level C	Level D
0-1000	1001-2000	2001-3000	3001-4000
$ 28.08	$ 31.90	$ 35.72	$ 39.54

Supplemental Benefits per hour:

Apprentices	
All terms	$ 23.20

8-235/B

Laborer - Heavy&Highway **04/01/2024**

JOB DESCRIPTION Laborer - Heavy&Highway **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

WAGES
PUTNAM: APPLIES TO ALL HEAVY & HIGHWAY WORK EXCLUDING HIGHWAYS, STREETS, AND BRIDGES

GROUP I: Blaster, Quarry Master, Curbs/Asphalt Screedman, Pipe Jacking and Boring Operations Operator, Qualified Dead Condition Pipe Fuser (B Mechanic)

GROUP II: Burner, Drillers(jumbo, joy, wagon, air track, hydraulic), Drill Operator, Self Contained Rotary Drill, Curbs, Raker, Bar Person, Concrete Finisher.

GROUP III: Pavement Breakers, Jeeper 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 Airlance, 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)	07/01/2023
GROUP I	$ 49.55*
GROUP II	48.20*
GROUP III	47.80*
GROUP IV	47.45*
GROUP V	47.10*
GROUP VIA	49.10*
Operator Qualified	
Gas Mechanic(A Mech)	59.55*
Flagperson	40.75*

*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 $ 26.60
Over 40 Hours
Per Hour 19.85

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 1-1000hrs	2nd term 1001-2000hrs	3rd term 2001-3000hrs	4th term 3001-4000hrs
07/01/2023	$ 27.46	$ 32.41	$ 37.12	$ 41.83

Supplemental Benefits per hour:

1st term	$ 3.85 - After 40 hours: $ 3.60
2nd term	$ 3.95 - After 40 hours: 3.60
3rd term	$ 4.45 - After 40 hours: 4.00
4th term	$ 5.00 - After 40 hours: 4.50

8-60H/H

Laborer - Tunnel 04/01/2024

JOB DESCRIPTION Laborer - Tunnel **DISTRICT** 11

ENTIRE COUNTIES
Columbia, Dutchess, Greene, Orange, Otsego, Putnam, Rockland, Sullivan, Ulster, Westchester

PARTIAL COUNTIES
Chenango: Townships of Columbus, Sherburne and New Berlin.
Delaware: Townships of Andes, Bovina, Middletown, Roxbury, Franklin, Hamden, Stamford, Delhi, Kortright, Harpersfield, Merideth and Davenport.

WAGES
Class 1: All support laborers/sandhogs working above the shaft or tunnel.

Class 2: All laborers/sandhogs working in the shaft or tunnel.

Class 4: Safety Miners

Class 5: Site work related to Shaft/Tunnel

WAGES: (per hour)

	07/01/2023	06/01/2024	06/01/2025
Class 1	$ 55.55	$ 57.05	$ 58.55
Class 2	57.70	59.20	60.70
Class 4	64.10	65.60	67.10
Class 5	47.65	49.90	51.40

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	$ 35.73	$ 36.98	$ 38.23
Benefit 2	51.01	TBD	TBD
Benefit 3	71.28	TBD	TBD

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 04/01/2024

JOB DESCRIPTION Lineman Electrician **DISTRICT** 6

ENTIRE COUNTIES

Westchester

WAGES

A Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors, assembly of all electrical materials, conduit, pipe or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

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:	07/01/2023	05/06/2024
Group A:		
Lineman, Tech, Welder	$ 60.41	$ 61.91
Crane, Crawler Backhoe	60.41	61.91
Cable Splicer-Pipe Type	66.45	68.10
Cert. Welder-Pipe Type	63.43	65.01
Group B:		
Digging Mach Operator	54.37	55.72
Tractor Trailer Driver	51.35	52.62
Groundman, Truck Driver	48.33	49.53
Equipment Mechanic	48.33	49.53
Flagman	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%

NOTE - The "Employer Registration" (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30, 2023 will expire within the granted time frame.

For Pre-Registered Projects 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. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS

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

	07/01/2023	05/06/2024
Group A	$ 29.40 *plus 7% of the hourly wage paid	$ 30.90 *plus 7% of the hourly wage paid
Group B	$ 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.

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:

07/01/2023	05/06/2024
$ 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.

6-1249aWest

Lineman Electrician - Teledata — 04/01/2024

JOB DESCRIPTION Lineman Electrician - Teledata **DISTRICT** 6

ENTIRE COUNTIES
Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES
Per hour:

For outside work, stopping at first point of attachment (demarcation).

	07/01/2023	01/01/2024	01/01/2025
Cable Splicer	$ 37.73	$ 39.24	$ 40.81
Installer, Repairman	$ 35.81	$ 37.24	$ 38.73
Teledata Lineman	$ 35.81	$ 37.24	$ 38.73
Tech., Equip. Operator	$ 35.81	$ 37.24	$ 38.73
Groundman	$ 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:

	07/01/2023	01/01/2024	01/01/2025
Journeyman	$ 5.70 *plus 3% of the hourly wage paid	$ 5.70 *plus 3% of the hourly wage paid	$ 5.70 *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 — 04/01/2024

JOB DESCRIPTION Lineman Electrician - Traffic Signal, Lighting **DISTRICT** 6

ENTIRE COUNTIES
Westchester

WAGES
Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors which includes, but is not limited to road loop wires; conduit and plastic or other type pipes that carry conductors, flex cables and connectors, and to oversee the encasement or burial of such conduits or pipes.

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:	07/01/2023	05/06/2024
Group A:		
Lineman, Technician	$ 54.73	$ 55.95
Crane, Crawler Backhoe	54.73	55.95
Certified Welder	57.47	58.75
Group B:		
Digging Machine	49.26	50.36
Tractor Trailer Driver	46.52	47.56
Groundman, Truck Driver	43.78	44.76
Equipment Mechanic	43.78	44.76
Flagman	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%

NOTE - The "Employer Registration" (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30, 2023 will expire within the granted time frame.

For Pre-Registered Projects 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. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS

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

	07/01/2023	05/06/2024
Group A	$ 29.40 *plus 7% of the hourly wage paid	$ 30.90 *plus 7% of the hourly wage paid
Group B	$ 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.

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:

07/01/2023	05/06/2024
$ 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 — 04/01/2024

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Nassau, Rockland, Suffolk, Westchester

WAGES

Per hour:	07/01/2023	12/04/2023	06/05/2024 Additional
Tile Setters	$ 62.98	$ 63.50	$ 0.72

SUPPLEMENTAL BENEFITS
Per Hour:

	$ 25.61*	$25.81*
	+ $10.04	+ $10.04

* 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 1-750	2nd 751-1500	3rd 1501-2250	4th 2251-3000	5th 3001-3750	6th 3751-4500	7th 4501-5250	8th 5251-6000	9th 6001-6750	10th 6501-7000
07/01/2023	$21.70	$26.66	$33.75	$38.69	$42.25	$45.70	$49.29	$54.23	$57.09	$61.25
12/04/2023	$21.96	$26.95	$34.10	$39.08	$42.68	$46.16	$49.79	$54.77	57.66	$61.90

Supplemental Benefits per hour:

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
07/01/2023	$12.55* +$.73	$12.55* +$.78	$15.36* +$.88	$15.36* +$.88	$16.36* +$1.37	$17.86* +$1.42	$18.86* +$1.83	$18.86* +$1.88	$16.86* +$6.03	$22.11* +$6.61
12/04/2023	$12.55* +$0.73	$12.55* +$0.78	$15.63* +$0.89	$15.36* +$0.94	$16.36* +$1.38	$17.86* +$1.43	$18.86* +$1.84	$18.86* +$1.89	$16.86* +$6.04	$22.11* +$6.62

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

9-7/52A

Mason - Building — 04/01/2024

JOB DESCRIPTION Mason - Building **DISTRICT** 11

ENTIRE COUNTIES
Putnam, Rockland, Westchester

PARTIAL COUNTIES
Orange: Only the Township of Tuxedo.

WAGES
Per hour:

	07/01/2023
Bricklayer	$ 45.89
Cement Mason	45.89
Plasterer/Stone Mason	45.89
Pointer/Caulker	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 workday is mandated or required by state, federal, county, local or other governmental agency contracts, the following premiums apply:
Irregular workday requires 15% premium
Second shift an additional 15% of wage plus benefits to be paid
Third shift an additional 25% of wage plus benefits to be paid

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman	$ 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 — 04/01/2024

JOB DESCRIPTION Mason - Building **DISTRICT** 9

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

WAGES
Building

	07/01/2023	01/01/2024
Wages per hour:		
Mosaic & Terrazzo Mechanic	$ 60.65	$ 60.57
Mosaic & Terrazzo Finisher	59.04	58.96

SUPPLEMENTAL BENEFITS
Per hour:

Mosaic & Terrazzo Mechanic	$ 30.26* + $9.16	$ 31.36* + $9.17
Mosaic & Terrazzo Finisher	$ 30.26* + $9.15	$ 31.36* + $9.16

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

OVERTIME PAY
See (A, E, Q) on OVERTIME PAGE
07/01/2023- Deduct $7.25 from hourly wages before calculating overtime.
01/01/2024- Deduct $7.00 from hourly wages before calculating overtime.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
Easter Sunday is an observed holiday.Holidays falling on a Saturday will be observed on that Saturday. Holidays falling on a Sunday will be celebrated on the Monday.

REGISTERED APPRENTICES
Wages Per hour:

	1st 0- 1500	2nd 1501- 3000	3rd 3001- 3750	4th 3751- 4500	5th 4501- 5250	6th 5251- 6000
07/01/2023	$ 25.82	$ 32.19	$ 36.39	$ 40.38	$ 48.52	$ 54.59
01/01/2024	$ 25.05	$ 32.21	$ 37.93	$ 38.99	$ 47.18	$ 55.38

Supplemental Benefits per hour:

07/01/2023	$6.00* +$3.21	$7.72* +$4.12	$18.16* +$5.50	$23.27* +$6.41	$24.21* +$7.33	$27.24* +$8.29

01/01/2024	$7.12* +$3.21	$9.16* +$4.12	$17.22* +$5.51	$25.36* +$6.42	$26.36* +$7.34	$27.36* +$8.25

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

9-7/3

Mason - Building — 04/01/2024

JOB DESCRIPTION Mason - Building **DISTRICT** 9

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

WAGES

Per hour:	07/01/2023	07/03/2023
Building-Marble Restoration:		
Marble, Stone & Terrazzo Polisher	$ 47.22	$ 47.44

SUPPLEMENTAL BENEFITS

Per Hour:		
Journeyworker:		
Building-Marble Restoration:		
Marble, Stone & Polisher	$ 30.29	$ 30.64

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
$ 33.04	$ 37.78	$ 42.49	$ 47.22

Supplemental Benefits Per Hour:

27.65	28.52	29.41	30.29

07/03/2023
900 hour term at the following wage:

1st 1-900	2nd 901-1800	3rd 1801-2700	4th 2701
$ 33.19	$ 37.95	$ 42.69	$ 47.44

Supplemental Benefits Per Hour:

27.99	28.86	29.76	30.64

9-7/24-MP

Mason - Building — 04/01/2024

JOB DESCRIPTION Mason - Building **DISTRICT** 9

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

WAGES

Per Hour:

	07/01/2023	7/03/2023
Marble Cutters & Setters	$ 62.82	$ 63.12

SUPPLEMENTAL BENEFITS
Per Hour:

Journeyworker	$ 39.03	$ 39.34

OVERTIME PAY
See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage Per Hour:
07/01/2023
750 hour terms at the following wage

1st	2nd	3rd	4th	5th	6th	7th	8th
0-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6750	6751-7500	7500+
$ 26.42	$ 39.62	$ 42.91	$ 46.22	$ 49.52	$ 53.38	$ 59.67	$ 62.82

Supplemental Benefits per hour:
07/01/2023

1st	2nd	3rd	4th	5th	6th	7th	8th
$ 25.38	$ 28.86	$ 29.74	$ 30.60	$ 31.48	$ 36.44	$ 38.17	$ 39.03

07/03/2023
Wage Per Hour:

750 hour terms at the following wage.

1st	2nd	3rd	4th	5th	6th	7th	8th
0-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6750	6751-7500	7500+
$ 26.60	$ 39.82	$ 43.13	$ 46.45	$ 49.78	$ 53.64	$ 59.95	$ 63.12

Supplemental Benefits Per Hour:

1st	2nd	3rd	4th	5th	6th	7th	8th
$ 25.54	$ 29.09	$ 29.97	$ 30.84	$ 31.72	$ 36.73	$ 38.48	$ 39.34

9-7/4

Mason - Building — 04/01/2024

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Nassau, Rockland, Suffolk, Westchester

WAGES
Per hour:

	07/01/2023	12/04/2023	06/03/2024
Tile Finisher	$ 48.36	$ 48.80	Additional $ 0.59

SUPPLEMENTAL BENEFITS
Per Hour:

	$ 22.56*	$ 22.71*
	+ $9.86	+ $9.86

*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 04/01/2024

JOB DESCRIPTION Mason - Building **DISTRICT** 9

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

WAGES

Per hour:	07/01/2023	07/03/2023
Marble, Stone, Maintenance Finishers:	$ 27.26	$ 27.44

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 Maintenance Finishers:	$ 14.97	$ 15.20

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:

	07/01/2023	07/03/2023
0-750	$ 21.89	$ 22.04
751-1500	22.60	$ 22.75
1501-2250	23.32	$ 23.48
2251-3000	24.04	$ 24.20
3001-3750	25.11	$ 25.27
3751-4500	26.54	$ 26.72
4501+	27.26	$ 27.44

Supplemental Benefits:
Per hour:

0-750	12.03	$ 12.24
751-1500	12.43	$ 12.64
1501-2250	12.82	$ 13.03
2251-3000	13.21	$ 13.42
3001-3750	13.80	$ 14.02
3751-4500	14.58	$ 14.80
4501+	14.97	$ 15.20

9-7/24M-MF

Mason - Building / Heavy&Highway 04/01/2024

JOB DESCRIPTION Mason - Building / Heavy&Highway **DISTRICT** 9

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

WAGES

Per hour:	07/01/2023	07/03/2023	01/01/2024
Marble-Finisher	$ 49.32	$ 49.65	$ 49.92

SUPPLEMENTAL BENEFITS
Journeyworker:
Per hour

Marble- Finisher	$ 36.62	$ 36.67	$ 36.93

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 — 04/01/2024

JOB DESCRIPTION Mason - Heavy&Highway **DISTRICT** 11

ENTIRE COUNTIES
Putnam, Rockland, Westchester

PARTIAL COUNTIES
Orange: Only the Township of Tuxedo.

WAGES
Per hour:

	07/01/2023
Bricklayer	$ 46.39
Cement Mason	46.39
Marble/Stone Mason	46.39
Plasterer	46.39
Pointer/Caulker	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 workday is mandated or required by state, federal, county, local or other governmental contracts, the following rates apply:
Irregular workday requires 15% premium
Second shift an additional 15% of wage plus benefits to be paid
Third shift an additional 25% of wage plus benefits to be paid

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman	$ 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 **04/01/2024**

JOB DESCRIPTION Operating Engineer - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Putnam, Queens, Richmond, Westchester

PARTIAL COUNTIES
Dutchess: that part of Dutchess County lying south of the North City Line of the City of Poughkeepsie.

WAGES
NOTE: Construction surveying
Party Chief--One who directs a survey party
Instrument Man--One who runs the instrument and assists Party Chief.
Rodman--One who holds the rod and assists the Survey Crew

Wages:(Per Hour)	07/01/2023
Building Construction:	
Party Chief	$ 77.39
Instrument Man	61.25
Rodman	41.39
Steel Erection:	
Party Chief	80.16
Instrument Man	63.60
Rodman	44.23
Heavy Construction-NYC counties only: (Foundation, Excavation.)	
Party Chief	85.74
Instrument man	64.40
Rodman	54.90

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2023
Building Construction	$ 28.04* +$ 7.65
Steel Erection	28.64* +$ 7.65
Heavy Construction	28.85* +$ 7.64

* This portion subject to same premium as wages

Non-Worked Holiday Supplemental Benefit:
21.19

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

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)

	07/01/2023	03/04/2024
GROUP I		
Cranes- up to 49 tons	$ 66.23	$ 67.43
Cranes- 50 tons to 99 tons	68.53	69.77
Cranes- 100 tons and over	78.21	79.64
GROUP I-A	58.01	59.04
GROUP I-B	53.48	54.41
GROUP II	55.98	56.97

GROUP III-A	53.94	54.88
GROUP III-B	51.35	52.25
GROUP IV-A	53.40	54.33
GROUP IV-B	45.17	45.94
GROUP V	48.69	49.53
Group VI-A	56.96	57.96
GROUP VI-B		
Utility Man	46.21	47.00
Warehouse Man	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	$ 31.57	$ 32.32

OVERTIME PAY
See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE

8-137B

Operating Engineer - Heavy&Highway — 04/01/2024

JOB DESCRIPTION Operating Engineer - Heavy&Highway **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

PARTIAL COUNTIES
Dutchess: All the counties of Westchester and Putnam and the southern part of Dutchess County defined by the northern boundary line of the City of Poughkeepsie, then due east to Route 115, then north along Route 115 to Bedell Road, then east along Bedell Road to Van Wagner Road, then north along Van Wagner Road to Bower Road, then east along Bower Road to Route 44 and along Route 44 east to Route 343, then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to the border line of the State of Connecticut and bordered on the west by the middle of the Hudson River.

WAGES
GROUP I: Boom Truck, Cherry Picker, Clamshell, Crane, (Crawler, Truck),
Dragline, Drill Rig (Casa Grande, Cat, or Similar), Floating Crane (Crane on Barges) under 100 tons, Gin Pole, Hoist Engineer-Concrete (Crane-Derrick-Mine Hoist), Knuckle Boom Crane, Rough Terrain Crane.

GROUP I-A: Auger (Truck or Truck Mounted), Boat Captain, Bulldozer-All Sizes, Central Mix Plant Operator, Chipper (all types), Close Circuit T.V., Combination Loader/Backhoe, Compactor with Blade, Concrete Finishing Machine, Gradall, Grader (Motor Grader), Elevator & Cage (Materials or Passenger), Excavator (and all attachments), Front End Loaders (1 1/2 yards and over), High Lift Lull and similar, Hoist (Single, Double, Triple Drum), Hoist Portable Mobile Unit, Hoist Engineer (Material), Jack and Bore Machine, Log Skidders, Mill Machines, Mucking Machines, Overhead Crane, Paver (concrete), Post Pounder (of any type), Push Cats, Road Reclaimer, Robot Hammer (Brokk or similar), Robotic Equipment (Scope of Engineer Schedule), Ross Carrier and similar, Scrapers (20 yard struck and over), Side Boom, Slip Form Machine, Spreader (Asphalt), Trenching Machines (Telephies-Vermeer Concrete Saw), Tractor Type Demolition Equipment, Vacuum Truck. Vibratory Roller(Riding) or Roller used in mainline paving operations.

GROUP I-B: Asphalt Mobile Conveyor/Transfer Machine, Road Paver (Asphalt).

GROUP II-A: Ballast Regulators, Compactor Self Propelled, Fusion Machine, Rail Anchor Machines, Roller (4 ton and over), Scrapers (20 yard struck and under).

GROUP II-B: Mechanic (Outside) All Types, Shop Mechanic.

GROUP III: Air Tractor Drill, Asphalt Plant, Batch Plant, Boiler (High Pressure), Concrete Breaker (Track or Rubber Tire), Concrete Pump, Concrete Spreader, Excavator Drill, Farm Tractor, Forklift (all types), Gas Tapping (Live), Hydroseeder, Loader (1 1/2 yards and under), Locomotive (all sizes), Machine Pulling Sheeps Foot Roller, Portable Asphalt Plant, Portable Batch Plant, Portable Crusher (Apprentice), Powerhouse Plant, Roller (under 4 ton), Sheer Excavator, Skid Steer/Bobcat, Stone Crusher, Sweeper (with seat), Well Drilling Machine.

GROUP IV: Service Person (Grease Truck), Deckhand.

GROUP IV-B: Conveyor Belt Machine (Truck Mounted), Heater (all types), Lighting Unit (Portable), Maintenance Engineer (For Crane Only), Mechanics Helper, Pump (Fireproofing), Pumps-Pump Station/Water/Sewer/Gypsum/Plaster, etc., Pump Truck (Sewer Jet or Similar), Welders Helper, Welding Machine (Steel Erection), Well Point System.

GROUP V: All Tower Cranes-All Climbing Cranes and all cranes of 100-ton capacity or greater (3900 Manitowac or similar) irrespective of manufacturer and regardless of how the same is rigged, Hoist Engineer (Steel), Engineer-Pile Driver, Jersey Spreader, Pavement Breaker/Post Hole Digger.

WAGES: Per hour:	07/01/2023	03/04/2024
Group I	$ 67.27	$ 68.63
Group I-A	59.26	60.42
Group I-B	62.46	63.70
Group II-A	56.74	57.84
Group II-B	58.52	59.67
Group III	55.74	56.81
Group IV	50.63	51.57
Group IV-B	43.43	44.19
Group V		
Engineer All Tower, Climbing and Cranes of 100 Tons	76.24	77.82
Hoist Engineer(Steel)	69.01	70.41
Engineer(Pile Driver)	73.61	75.13
Jersey Spreader, Pavement Breaker (Air Ram)Post Hole Digger	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.

NOTE - The "Employer Registration" (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30,2023 will expire within the granted time frame.

For Pre-Registered Projects 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. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker:	$ 33.75 up to 40 Hours	$ 34.85 up to 40 hours
	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	$ 29.63	$ 30.21
2nd term	35.56	36.25
3rd term	41.48	42.30
4th term	47.41	48.34
Supplemental Benefits per hour:		
	25.70	26.85

8-137HH

Operating Engineer - Heavy&Highway — 04/01/2024

JOB DESCRIPTION Operating Engineer - Heavy&Highway **DISTRICT** 9

ENTIRE COUNTIES
Putnam, Westchester

PARTIAL COUNTIES
Dutchess: South of the North city line of Poughkeepsie

WAGES
Party Chief - One who directs a survey party
Instrument Man - One who runs the instrument and assists Party Chief
Rodman - One who holds the rod and in general, assists the Survey Crew
Categories cover GPS & Underground Surveying

Per Hour:	07/01/2023
Party Chief	$ 81.72
Instrument Man	61.43
Rodman	52.40

SUPPLEMENTAL BENEFITS
Per Hour: 07/01/2023

All Categories
Straight Time: $ 25.25* + $7.64

Premium:
Time & 1/2 $ 37.88* + $7.64

Double Time $ 50.50* + $7.64

Non-Worked Holiday Supplemental Benefits:
$ 21.19

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 — 04/01/2024

JOB DESCRIPTION Operating Engineer - Heavy&Highway - Tunnel **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

PARTIAL COUNTIES
Dutchess: All the counties of Westchester and Putnam and the southern part of Dutchess County defined by the northern boundary line of the City of Poughkeepsie, then due east to Route 115, then north along Route 115 to Bedell Road, then east along Bedell Road to Van Wagner Road, then north along Van Wagner Road to Bower Road, then east along Bower Road to Route 44 and along Route 44 east to Route 343, then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to the border line of the State of Connecticut and bordered on the west by the middle of the Hudson River.

WAGES
GROUP I: Boom Truck, Cherry Picker, Clamshell, Crane(Crawler, Truck), Dragline, Drill Rig Casa Grande(Cat or Similar), Floating Crane(Crane on Barge-Under 100 Tons), Hoist Engineer(Concrete/Crane-Derrick-Mine Hoist), Knuckle Boom Crane, Rough Terrain Crane.

GROUP I-A: Auger(Truck or Truck Mounted), Boat Captain, Bull Dozer-all sizes, Central Mix Plant Operator, Chipper-all types, Close Circuit T.V., Combination Loader/Backhoe, Compactor with Blade, Concrete Finishing Machine, Gradall, Grader(Motor Grader), Elevator & Cage(Materials or Passengers), Excavator(and all attachments), Front End Loaders(1 1/2 yards and over), High Lift Lull, Hoist(Single, Double, Triple Drum), Hoist Portable Mobile Unit, Hoist Engineer(Material), Jack and Bore Machine, Log Skidder, Milling Machine, Moveable Concrete Barrier Transfer & Transport Vehicle, Mucking Machines. Overhead Crane, Paver(Concrete), Post Pounder of any type, Push Cats, Road Reclaimer, Robot Hammer(Brokk or similar), Robotic Equipment(Scope of Engineer Schedule), Ross Carrier and similar machines, Scrapers(20 yards struck and over), Side Boom, Slip Form Machine, Spreader(Asphalt), Trenching Machines, Telephies-Vermeer Concrete Saw, Tractor type demolition equipment, Vacuum Truck, Vibratory Roller (Riding) used in mainline paving operations.

GROUP I-B: Asphalt Mobile Conveyor/Transfer Machine, Road Paver(Asphalt).

GROUP II-A: Ballast Regulators, Compactor(Self-propelled), Fusion Machine, Rail Anchor Machines, Roller(4 ton and over), Scrapers(20 yard struck and under).

GROUP II-B: Mechanic(outside)all types, Shop Mechanic.

GROUP III: Air Tractor Drill, Asphalt Plant, Batch Plant, Boiler(High Pressure), Concrete Breaker(Track or Rubber Tire), Concrete Pump, Concrete Spreader, Excavator Drill, Farm Tractor, Forklift(all types of power), Gas Tapping(Live), Hydroseeder, Loader(1 1/2 yards and under), Locomotive(all sizes), Machine Pulling Sheeps Foot Roller, Portable Asphalt Plant, Portable Batch Plant, Portable Crusher(Apprentice), Powerhouse Plant, Roller(under 4 ton), Sheer Excavator, Skidsteer/Bobcat, Stone Crusher, Sweeper(with seat), Well Drilling Machine.

GROUP IV-A: Service Person(Grease Truck), Deckhand.

GROUP IV-B: Conveyor Belt Machine(Truck Mounted), Heater(all types), Lighting Unit(Portable), Maintenance Engineer(for Crane only), Mechanics Helper, Pump(Fireproofing), Pumps-Pump Station/Water/Sewer/Gypsum/Plaster, etc., Pump Truck(Sewer Jet or similar), Welding Machine(Steel Erection), Welders Helper.

GROUP V-A: Engineer(all Tower Cranes, all Climbing Cranes & all Cranes of 100 ton capacity or greater),Hoist Engineer(Steel-Sub Structure), Engineer-Pile Driver, Jersey-Spreader, Pavement breaker, Post Hole Digger

WAGES: (per hour)

	07/01/2023	03/04/2024
GROUP I	$ 67.27	$ 68.63
GROUP I-A	59.26	60.42
GROUP I-B	62.46	63.70
GROUP II-A	56.74	57.84
GROUP II-B	58.52	59.67
GROUP III	55.74	56.81
GROUP IV-A	50.63	51.57
GROUP IV-B	43.43	44.19
GROUP V-A		
Engineer-Cranes	76.24	77.82
Engineer-Pile Driver	73.61	75.13
Hoist Engineer	69.01	70.41
Jersey Spreader/Post Hole Digger	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:

$ 33.75 up to 40 hours	$ 34.85 up to 40 hours
After 40 hours $24.50 plus $1.25 on all	After 40 hours $25.55 plus $1.25 on all

	hours worked	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	$ 29.63	$ 30.21
2nd term	35.56	36.25
3rd term	41.48	42.30
4th term	47.41	48.34

Supplemental Benefits per hour:

All terms	$ 25.70	$ 26.85

8-137Tun

Operating Engineer - Marine Dredging — 04/01/2024

JOB DESCRIPTION Operating Engineer - Marine Dredging **DISTRICT** 4

ENTIRE COUNTIES
Albany, Bronx, Cayuga, Clinton, Columbia, Dutchess, Essex, Franklin, Greene, Jefferson, Kings, Monroe, Nassau, New York, Orange, Oswego, Putnam, Queens, Rensselaer, Richmond, Rockland, St. Lawrence, Suffolk, Ulster, Washington, Wayne, Westchester

WAGES
These wages do not apply to Operating Engineers on land based construction projects. For those projects, please see the Operating Engineer Heavy/Highway Rates. The wage rates below for all equipment and operators are only for marine dredging work in navigable waters found in the counties listed above.

Per Hour:	07/01/2023	10/01/2023
CLASS A1 Deck Captain, Leverman Mechanical Dredge Operator Licensed Tug Operator 1000HP or more.	$ 43.94	$ 45.26
CLASS A2 Crane Operator (360 swing)	39.16	40.33
CLASS B Dozer, Front Loader Operator on Land	To conform to Operating Engineer Prevailing Wage in locality where work is being performed including benefits.	
CLASS B1 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	38.00	39.14
CLASS B2 Certified Welder	35.77	36.84
CLASS C1 Drag Barge Operator, Steward, Mate, Assistant Fill Placer	34.79	35.83
CLASS C2 Boat Operator	33.67	34.68
CLASS D	27.97	28.81

Shoreman, Deckhand, Oiler,
Rodman, Scowman, Cook,
Messman, Porter/Janitor

SUPPLEMENTAL BENEFITS
Per Hour:
THE FOLLOWING SUPPLEMENTAL BENEFITS APPLY TO ALL CATEGORIES

All Classes A & B	$ 11.85 plus 6% of straight time wage, Overtime hours add $ 0.63	$ 12.00 plus 6% of straight time wage, Overtime hours add $ 0.63
All Class C	$ 11.60 plus 6% of straight time wage, Overtime hours add $ 0.50	$ 11.75 plus 6% of straight time wage, Overtime hours add $ 0.50
All Class D	$ 11.35 plus 6% of straight time wage, Overtime hours add $ 0.38	$ 11.60 plus 6% of straight time wage, Overtime hours add $ 0.50

OVERTIME PAY
See (B2, F, R) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 26) on HOLIDAY PAGE

4-25a-MarDredge

Operating Engineer - Survey Crew - Consulting Engineer — 04/01/2024

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES
Dutchess: That part in Duchess 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: 07/01/2023
Survey Classifications

Party Chief	$ 47.15
Instrument Man	39.30
Rodman	34.35

SUPPLEMENTAL BENEFITS
Per Hour:

All Crew Members: $ 23.15

OVERTIME PAY
OVERTIME:.... See (B, E*, Q, V) ON OVERTIME PAGE.
*Double-time paid on the 9th hour on Saturday.

HOLIDAY
Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE
Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

9-15dconsult

Painter — 04/01/2024

JOB DESCRIPTION Painter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:	07/01/2023
Brush	$ 51.70*
Abatement/Removal of lead based or lead containing paint on materials to be repainted.	51.70*
Spray & Scaffold	$ 54.70*
Fire Escape	54.70*
Decorator	54.70*
Paperhanger/Wall Coverer	54.48*

*Subtract $ 0.10 to calculate premium rate.

SUPPLEMENTAL BENEFITS
Per hour:

Paperhanger	$ 34.60
All others	32.73
Premium	36.70**

**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:	07/01/2023
Appr 1st term...	$ 19.95*
Appr 2nd term...	25.56*
Appr 3rd term...	31.05*
Appr 4th term...	41.62*

*Subtract $ 0.10 to calculate premium rate.

Supplemental benefits:
Per Hour:

Appr 1st term...	$ 16.06
Appr 2nd term...	19.95
Appr 3rd term...	23.02
Appr 4th term...	29.16

8-NYDC9-B/S

Painter — 04/01/2024

JOB DESCRIPTION Painter **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Suffolk, Westchester

PARTIAL COUNTIES
Nassau: All of Nassau except the areas described below: Atlantic Beach, Ceaderhurst, East Rockaway, Gibson, Hewlett, Hewlett Bay, Hewlett Neck, Hewlett Park, Inwood, Lawrence, Lido Beach, Long Beach, parts of Lynbrook, parts of Oceanside, parts of Valley Stream, and Woodmere. Starting on the South side of Sunrise Hwy in Valley Stream running east to Windsor and Rockaway Ave., Rockville Centre is the boundary line up to Lawson Blvd. turn right going west all the above territory. Starting at Union Turnpike and Lakeville Rd. going north to Northern Blvd. the west side of Lakeville road to Northern blvd. At Northern blvd. going east the district north of Northern blvd. to Port Washington Blvd. West of Port Washington blvd.to St.Francis Hospital then north of first traffic light to Port Washington and Sands Point, Manor HAven, Harbour Acres.

WAGES

Per hour:	07/01/2023
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 — 04/01/2024

JOB DESCRIPTION Painter - Bridge & Structural Steel **DISTRICT** 8

ENTIRE COUNTIES
Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES
Per Hour:
STEEL:

Bridge Painting:	07/01/2023	10/01/2023
	$ 54.50	$ 56.00
	+ 10.10*	+ 10.35*

ADDITIONAL $6.50 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:

	$ 11.78	$ 12.43

	+ 30.85*	+ 31.55*

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (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	$ 21.80	$ 22.40
	+ 4.04	+ 4.14
2nd year	$ 32.70	$ 33.60
	+ 6.06	+ 6.21
3rd year	$ 43.60	$ 44.80
	+ 8.08	+ 8.28
Supplemental Benefits - Per hour:		
1st year	$ .90	$ 1.16
	+ 12.34	+ 12.62
2nd year	$ 7.07	$ 7.46
	+ 18.51	+ 18.93
3rd year	$ 9.42	$ 9.94
	+ 24.68	+ 25.24

NOTE: All premium wages are to be calculated on base rate per hour only.

8-DC-9/806/155-BrSS

Painter - Line Striping — 04/01/2024

JOB DESCRIPTION Painter - Line Striping **DISTRICT** 8

ENTIRE COUNTIES
Albany, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Montgomery, Nassau, Orange, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES
Per hour:

Painter (Striping-Highway):	07/01/2023	01/01/2024	07/01/2024
Striping-Machine Operator*	$ 31.53	$ 31.53	$ 34.12
Linerman Thermoplastic	38.34	38.34	41.12

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.

NOTE - The "Employer Registration" (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30,2023 will expire within the granted time frame.

For Pre-Registered Projects 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. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour paid:
Journeyworker:

Striping Machine Operator:	$ 10.03	$ 22.24	$ 23.65

Linerman Thermoplastic:	10.03	22.24	23.65

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	$ 15.00	$ 15.00
2nd Term:	18.92	18.92	20.47
3rd Term:	25.22	25.22	27.30

Supplemental Benefits per hour:

1st term:	$ 9.16	$ 22.24	$ 23.65
2nd Term:	10.03	22.24	23.65
3rd Term:	10.03	22.24	23.65

8-1456-LS

Painter - Metal Polisher — 04/01/2024

JOB DESCRIPTION Painter - Metal Polisher **DISTRICT** 8

ENTIRE COUNTIES
Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

	07/01/2023
Metal Polisher	$ 38.18
Metal Polisher*	39.28
Metal Polisher**	42.18

*Note: Applies on New Construction & complete renovation
** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS
Per Hour: 07/01/2023

Journeyworker:
All classification $ 12.34

OVERTIME PAY
See (B, E, P, T) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:
One (1) year term at the following wage rates:

	07/01/2023
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	$ 8.69
2nd year	8.69
3rd year	8.69

8-8A/28A-MP

Plumber — 04/01/2024

JOB DESCRIPTION Plumber **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

WAGES
Per hour:

	07/01/2023
Plumber and Steamfitter	$ 62.36

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	$ 41.51

OVERTIME PAY
See (B, E, E2, Q, V) on OVERTIME PAGE
OVERTIME:... See on OVERTIME PAGE.

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6, 8, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
(1)year terms at the following wages:

1st Term	$ 23.20
2nd Term	26.61
3rd Term	30.74
4th Term	43.81
5th Term	46.99

Supplemental Benefits per hour:

1st term	$ 17.12
2nd term	19.12
3rd term	22.74
4th term	30.02
5th term	31.82

8-21.1-ST

Plumber - HVAC / Service — 04/01/2024

JOB DESCRIPTION Plumber - HVAC / Service **DISTRICT** 8

ENTIRE COUNTIES
Dutchess, Putnam, Westchester

PARTIAL COUNTIES
Delaware: Only the townships of Middletown and Roxbury
Ulster: Entire County(including Wallkill and Shawangunk Prisons) except for remainder of Town of Shawangunk and Towns of Plattekill, Marlboro, and Wawarsing.

WAGES
Per hour: 07/01/2023

HVAC Service	$ 42.68
	+ $ 4.37*

*Note: This portion of wage is not subject to overtime premium.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker HVAC Service
$ 28.99

OVERTIME PAY
See (B, F, R) on OVERTIME PAGE

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

REGISTERED APPRENTICES
HVAC SERVICE

(1)year terms at the following wages:

1st yr.	2nd yr.	3rd yr.	4th yr.	5th yr.
$ 19.32	$ 22.91	$ 28.56	$ 35.13	$ 38.15
+$2.39*	+$2.70*	+$3.25*	+$3.88*	+$4.12*

*Note: This portion of wage is not subject to overtime premium.

Supplemental Benefits per hour:

Apprentices	07/01/2023
1st term	$ 20.84
2nd term	22.28
3rd term	23.85
4th term	26.01
5th term	27.55

8-21.1&2-SF/Re/AC

Plumber - Jobbing & Alterations — 04/01/2024

JOB DESCRIPTION Plumber - Jobbing & Alterations **DISTRICT** 8

ENTIRE COUNTIES
Dutchess, Putnam, Westchester

PARTIAL COUNTIES
Ulster: Entire county (including Wallkill and Shawangunk Prisons in Town of Shawangunk) EXCEPT for remainder of Town of Shawangunk, and Towns of Plattekill, Marlboro, and Wawarsing.

WAGES
Per hour: 07/01/2023
Journeyworker: $ 48.51

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
$ 34.76

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	$ 20.92
2nd year	23.24
3rd year	25.29
4th year	35.48
5th year	37.49

Supplemental Benefits per hour:

1st year	$ 11.45
2nd year	13.46
3rd year	17.51
4th year	23.67
5th year	25.68

8-21.3-J&A

Roofer — 04/01/2024

JOB DESCRIPTION Roofer **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Dutchess, Kings, New York, Orange, Putnam, Queens, Richmond, Rockland, Sullivan, Ulster, Westchester

WAGES

Per Hour:	07/01/2023	05/01/2024 Additional
Roofer/Waterproofer	$ 46.50 + $7.00*	$2.50

* This portion is not subjected to overtime premiums.

Note: Abatement/Removal of Asbestos containing roofs and roofing material is classified as Roofer.

SUPPLEMENTAL BENEFITS
Per Hour: $ 31.37

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 apprentices indentured prior to 01/01/2023

1st	2nd	3rd	4th
$ 16.28	$ 23.25 + 3.50*	$ 27.90 + 4.20*	$ 34.88 + 5.26*

Supplements:

1st	2nd	3rd	4th
$ 4.03	$ 15.85	$ 18.95	$ 23.61

* This portion is not subjected to overtime premiums.

(1) year term apprentices indentured after 01/01/2023

1st	2nd	3rd	4th	5th
$ 17.67	$ 20.93 + 3.16*	$ 23.25 + 3.50*	$ 27.90 + 4.20*	$ 34.88 + 5.26

Supplements:

1st	2nd	3rd	4th	5th
$ 7.61	$ 14.29	$ 15.85	$ 18.95	$ 23.61

* This portion is not subjected to overtime premiums.

9-8R

Sheetmetal Worker **04/01/2024**

JOB DESCRIPTION Sheetmetal Worker **DISTRICT** 8

ENTIRE COUNTIES
Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

WAGES

	07/01/2023
SheetMetal Worker	$ 47.00
	+ 3.60*

*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 $ 45.62

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
$ 17.50	$ 19.67	$ 21.87	$ 24.05	$ 26.24	$ 28.44	$ 31.10	$ 33.75
+ 1.44*	+ 1.62*	+ 1.80*	+ 1.98*	+ 2.16*	+ 2.34*	+ 2.52*	+ 2.70*

*This portion is not subject to overtime premiums.

Supplemental Benefits per hour:

Apprentices	
1st term	$ 19.53
2nd term	21.99
3rd term	24.42
4th term	26.88
5th term	29.32
6th term	31.75
7th term	33.72
8th term	35.71

8-38

Sheetmetal Worker **04/01/2024**

JOB DESCRIPTION Sheetmetal Worker **DISTRICT** 4

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

WAGES

Per Hour:	07/01/2023
Sign Erector	$ 56.00

NOTE: Structurally Supported Overhead Highway Signs(See STRUCTURAL IRON WORKER CLASS)

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2023
Sign Erector	$ 55.66

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:

07/01/2023

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
$ 14.95	$ 16.95	$ 18.93	$ 20.93	$ 28.56	$ 31.05	$ 33.57	$ 36.05	$ 38.56	$ 41.05

4-137-SE

Sprinkler Fitter — 04/01/2024

JOB DESCRIPTION Sprinkler Fitter **DISTRICT** 1

ENTIRE COUNTIES
Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

WAGES
Per hour 07/01/2023

Sprinkler Fitter $ 50.86

SUPPLEMENTAL BENEFITS
Per hour

Journeyperson $ 30.19

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
$ 24.77	$ 27.53	$ 30.03	$ 32.78	$ 35.53	$ 38.29	$ 41.04	$ 43.79	$ 46.54	$ 49.30

Supplemental Benefits per hour

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
$ 8.74	$ 8.74	$ 20.32	$ 20.32	$ 20.57	$ 20.57	$ 20.57	$ 20.57	$ 20.57	$ 20.57

1-669.2

Teamster - Building / Heavy&Highway — 04/01/2024

JOB DESCRIPTION Teamster - Building / Heavy&Highway **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

WAGES
GROUP A: Straight Trucks (6-wheeler and 10-wheeler), A-frame, Winch, Dynamite Seeding, Mulching, Agitator, Water, Attenuator, Light Towers, Cement (all types), Suburban, Station Wagons, Cars, Pick Ups, any vehicle carrying materials of any kind.
GROUP AA: Tack Coat
GROUP B: Tractor & Trailers (all types).
GROUP BB: Tri-Axle,14 Wheeler
GROUP C: Low Boy (carrying equipment).
GROUP D: Fuel Trucks, Tire Trucks.
GROUP E: Off-road Equipment (over 40 tons): Athey Wagons, Belly Dumps, Articulated Dumps, Trailer Wagons.
GROUP F: Off-road Equipment (over 40 tons) Euclid, DJB.

GROUP G: Off-road Equipment (under 40 tons) Athey Wagons, Belly Articulated Dumps, Trailer Wagons.
GROUP H: Off-road Equipment(under 40 tons), Euclid.
GROUP HH: Off-road Equipment(under 40 tons) D.J.B.
GROUP I: Off-road Equipment(under 40 tons) Darts.
GROUP II: Off-road Equipment(under 40 tons) RXS.

WAGES:(per hour)

	07/01/2023
GROUP A	$ 46.86*
GROUP AA	49.86*
GROUP B	47.48*
GROUP BB	46.98*
GROUP C	49.61*
GROUP D	47.31*
GROUP E	47.86*
GROUP F	48.86*
GROUP G	47.61*
GROUP H	48.23*
GROUP HH	48.61*
GROUP I	48.36*
GROUP II	48.73*

* To calculate premium wage, subtract $ .10 from the hourly wage.

Note: Fuel truck operators on construction sites addit. $5.00 per day.
For work on hazardous/toxic waste site addit. 20% of hourly rate.

Shift 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.

NOTE: The Employer Registration (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30,2023 will expire within the granted time frame.

For Pre-Registered Projects 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. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour:
Journeyworker

First 40 hours	$ 35.58
41st-45th hours	15.73
Over 45 hours	1.60

OVERTIME PAY
See (B, E, P, R) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 8, 15, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 25) on HOLIDAY PAGE

8-456

Welder 04/01/2024

JOB DESCRIPTION Welder **DISTRICT** 1

ENTIRE COUNTIES
Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES
Per hour 07/01/2023

Welder: To be paid the same rate of the mechanic performing the work.*

*EXCEPTION: If a specific welder certification is required, then the 'Certified Welder' rate in that trade tag will be paid.

OVERTIME PAY

HOLIDAY

1-As Per Trade

Overtime Codes

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule. Additional requirements may also be listed in the HOLIDAY section.

NOTE: Supplemental Benefits are 'Per hour worked' (for each hour worked) unless otherwise noted

(AA)	Time and one half of the hourly rate after 7 and one half hours per day
(A)	Time and one half of the hourly rate after 7 hours per day
(B)	Time and one half of the hourly rate after 8 hours per day
(B1)	Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday. Double the hourly rate for all additional hours
(B2)	Time and one half of the hourly rate after 40 hours per week
(C)	Double the hourly rate after 7 hours per day
(C1)	Double the hourly rate after 7 and one half hours per day
(D)	Double the hourly rate after 8 hours per day
(D1)	Double the hourly rate after 9 hours per day
(E)	Time and one half of the hourly rate on Saturday
(E1)	Time and one half 1st 4 hours on Saturday; Double the hourly rate all additional Saturday hours
(E2)	Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
(E3)	Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week
(E4)	Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
(E5)	Double time after 8 hours on Saturdays
(F)	Time and one half of the hourly rate on Saturday and Sunday
(G)	Time and one half of the hourly rate on Saturday and Holidays
(H)	Time and one half of the hourly rate on Saturday, Sunday, and Holidays
(I)	Time and one half of the hourly rate on Sunday
(J)	Time and one half of the hourly rate on Sunday and Holidays
(K)	Time and one half of the hourly rate on Holidays
(L)	Double the hourly rate on Saturday
(M)	Double the hourly rate on Saturday and Sunday
(N)	Double the hourly rate on Saturday and Holidays
(O)	Double the hourly rate on Saturday, Sunday, and Holidays
(P)	Double the hourly rate on Sunday
(Q)	Double the hourly rate on Sunday and Holidays
(R)	Double the hourly rate on Holidays
(S)	Two and one half times the hourly rate for Holidays

(S1) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.

(T) Triple the hourly rate for Holidays

(U) Four times the hourly rate for Holidays

(V) Including benefits at SAME PREMIUM as shown for overtime

(W) Time and one half for benefits on all overtime hours.

(X) Benefits payable on Paid Holiday at straight time. If worked, additional benefit amount will be required for worked hours. (Refer to other codes listed.)

Holiday Codes

PAID Holidays:

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

OVERTIME Holiday Pay:

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

(1)	None
(2)	Labor Day
(3)	Memorial Day and Labor Day
(4)	Memorial Day and July 4th
(5)	Memorial Day, July 4th, and Labor Day
(6)	New Year's, Thanksgiving, and Christmas
(7)	Lincoln's Birthday, Washington's Birthday, and Veterans Day
(8)	Good Friday
(9)	Lincoln's Birthday
(10)	Washington's Birthday
(11)	Columbus Day
(12)	Election Day
(13)	Presidential Election Day
(14)	1/2 Day on Presidential Election Day
(15)	Veterans Day
(16)	Day after Thanksgiving
(17)	July 4th
(18)	1/2 Day before Christmas
(19)	1/2 Day before New Years
(20)	Thanksgiving
(21)	New Year's Day
(22)	Christmas
(23)	Day before Christmas
(24)	Day before New Year's
(25)	Presidents' Day
(26)	Martin Luther King, Jr. Day
(27)	Memorial Day
(28)	Easter Sunday

(29) Juneteenth

New York State Department of Labor - Bureau of Public Work
State Office Building Campus
Building 12 - Room 130
Albany, New York 12226

REQUEST FOR WAGE AND SUPPLEMENT INFORMATION

As Required by Articles 8 and 9 of the NYS Labor Law

Fax (518) 485-1870 or mail this form for new schedules or for determination for additional occupations.

This Form Must Be Typed

Submitted By: (Check Only One) ☐ Contracting Agency ☐ Architect or Engineering Firm ☐ Public Work District Office Date:

A. Public Work Contract to be let by: (Enter Data Pertaining to Contracting/Public Agency)

1. Name and complete address ☐ (Check if new or change)

Telephone Fax

E-Mail:

2. NY State Units (see Item 5).

- ☐ 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
- ☐ 1O 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
- ☐ Fuel Delivery
- ☐ Guards, Watchmen
- ☐ Janitors, Porters, Cleaners, Elevator Operators
- ☐ Moving furniture and equipment
- ☐ Trash and refuse removal
- ☐ Window cleaners
- ☐ Other (Describe)

9. Does this project comply with the Wicks Law involving separate bidding? YES ☐ NO ☐

10. Name and Title of Requester

Signature

SEE PAGE TWO FOR LAWS RELATING TO PUBLIC WORK CONTRACTS

NEW YORK STATE DEPARTMENT OF LABOR
Bureau of Public Work - Debarment List

LIST OF EMPLOYERS INELIGIBLE TO BID ON OR BE AWARDED ANY PUBLIC WORK CONTRACT

Under Article 8 and Article 9 of the NYS Labor Law, a contractor, sub-contractor and/or its successor shall be debarred and ineligible to submit a bid on or be awarded any public work or public building service contract/sub-contract with the state, any municipal corporation or public body for a period of five (5) years from the date of debarment when:

- Two (2) final determinations have been rendered within any consecutive six-year (6) period determining that such contractor, sub-contractor and/or its successor has WILLFULLY failed to pay the prevailing wage and/or supplements;
- One (1) final determination involves falsification of payroll records or the kickback of wages and/or supplements.

The agency issuing the determination and providing the information, is denoted under the heading 'Fiscal Officer'. DOL = New York State Department of Labor; NYC = New York City Comptroller's Office; AG = New York State Attorney General's Office; DA = County District Attorney's Office.

Debarment Database: To search for contractors, sub-contractors and/or their successors debarred from bidding or being awarded any public work contract or subcontract under NYS Labor Law Articles 8 and 9, or under NYS Workers' Compensation Law Section 141-b, access the database at this link: https://apps.labor.ny.gov/EDList/searchPage.do

For inquiries where WCB is listed as the "Agency", please call 1-866-546-9322

NYSDOL Bureau of Public Work Debarment List 04/23/2024

Article 8

AGENCY	Fiscal Officer	FEIN	EMPLOYER NAME	EMPLOYER DBA NAME	ADDRESS	DEBARMENT START DATE	DEBARMENT END DATE
DOL	DOL	*****5754	0369 CONTRACTORS, LLC		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL	*****5784	A.J.M. TRUCKING, INC.		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	AG	*****1812	ADVANCED BUILDERS & LAND DEVELOPMENT, INC.		400 OSER AVE #2300HAUPPAUGE NY 11788	09/11/2019	09/11/2024
DOL	DOL	*****1687	ADVANCED SAFETY SPRINKLER INC		261 MILL ROAD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
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 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	*****4231	ANKER'S ELECTRIC SERVICE, INC.		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL		ANTHONY MONGELLI		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	NYC		ARADCO CONSTRUCTION CORP		115-46 132RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	DOL		ARNOLD A. PAOLINI		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC		ARSHAD MEHMOOD		168-42 88TH AVENUE JAMAICA NY 11432	11/20/2019	11/20/2024
DOL	NYC		AVM CONSTRUCTION CORP		117-72 123RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	NYC		AZIDABEGUM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****8421	B & B DRYWALL, INC		206 WARREN AVE APT 1WHITE PLAINS NY 10603	12/14/2021	12/14/2026
DOL	DOL		B&L RENOVATION CO.		618 OCEAN PARKWAY APT A6BROOKLYN NY 11230	09/17/2020	09/17/2025
DOL	DOL		BERNARD BEGLEY		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
DOL	NYC	*****2113	BHW CONTRACTING, INC.		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL	*****3627	BJB CONSTRUCTION CORP.		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
DOL	DOL	*****5078	BLACK RIVER TREE REMOVAL, LLC		29807 ANDREWS ROAD BLACK RIVER NY 13032	10/17/2023	10/17/2028
DOL	DOL	*****4512	BOB BRUNO EXCAVATING, INC		5 MORNINGSIDE DR AUBURN NY 13021	05/28/2019	05/28/2024
DOL	DOL		BRADLEY J SCHUKA		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	DOL	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL	*****4083	C.P.D. ENTERPRISES, INC		P.O BOX 281 WALDEN NY 12586	03/03/2020	03/03/2025
DOL	DOL	*****5161	CALADRI DEVELOPMENT CORP.		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	*****3391	CALI ENTERPRISES, INC.		1223 PARK STREET PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	NYC		CALVIN WALTERS		465 EAST THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL	*****4155	CASA BUILDERS, INC.	FRIEDLANDER CONSTRUCTION	64 N PUTT CONNERS ROAD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	AG	*****7247	CENTURY CONCRETE CORP		2375 RAYNOR ST RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0026	CHANTICLEER CONSTRUCTION LLC		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	NYC	*****2117	CHARAN ELECTRICAL ENTERPRISES		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028
DOL	NYC		CHARLES ZAHRADKA		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025

NYSDOL Bureau of Public Work Debarment List 04/23/2024

Article 8

DOL	DOL		CHRISTOPHER GRECO		26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL		CHRISTOPHER PAPASTEFANOU A/K/A CHRIS PAPASTEFANOU		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL		CRAIG JOHANSEN		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL	*****3228	CROSS-COUNTY LANDSCAPING AND TREE SERVICE, INC.	ROCKLAND TREE SERVICE	26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL	*****7619	DANCO CONSTRUCTION UNLIMITED INC.		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL		DANIEL ROBERT MCNALLY		7 GREENFIELD DRIVE WARWICK NY 10990	03/25/2022	03/25/2027
DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		DAVID FRIEDLANDER		64 NORTH PUTT CORNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	NYC		DAVID WEINER		14 NEW DROP LANE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024
DOL	DOL		DELPHI PAINTING & DECORATING CO INC		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL		DINA TAYLOR		64 N PUTT CONNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	DOL	*****5175	EAGLE MECHANICAL AND GENERAL CONSTRUCTION LLC		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	AG		EDWIN HUTZLER		23 NORTH HOWELLS RD BELLPORT NY 11713	08/04/2021	08/04/2026
DOL	DA		EDWIN HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0780	EMES HEATING & PLUMBING CONTR		5 EMES LANE MONSEY NY 10952	01/20/2002	01/20/3002
DOL	DOL		EUGENIUSZ "GINO" KUCHAR		195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	DA		FREDERICK HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	NYC	*****6616	G & G MECHANICAL ENTERPRISES, LLC.		1936 HEMPSTEAD TURNPIKE EAST MEDOW NY 11554	11/29/2019	11/29/2024
DOL	DOL	*****2998	G.E.M. AMERICAN CONSTRUCTION CORP.		195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	NYC		GAYATRI MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DA		GEORGE LUCEY		150 KINGS STREET BROOKLYN NY 11231	01/19/1998	01/19/2998
DOL	DOL		GIGI SCHNECKENBURGER		261 MILL RD EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	DA		GIOVANNA TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DA	*****0213	GORILLA CONTRACTING GROUP, LLC		505 MANHATTAN AVE WEST BABYLON NY 11704	10/05/2023	10/05/2028
DOL	DOL		HANS RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL		HERBERT CLEMEN		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	DOL		HERBERT CLEMEN		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL		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	11/07/2023	11/07/2028
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028

DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	12/12/2022	12/12/2027
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JAMES J. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****7993	JBS DIRT, INC.		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL	*****2435	JEFFEL D. JOHNSON	JMJ7 AND SON	5553 CAIRNSTRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JEFFEL JOHNSON ELITE CARPENTER REMODEL AND CONSTRUCTION		C2 EVERGREEN CIRCLE LIVERPOOL NY 13090	11/21/2022	11/21/2027
DOL	DOL	*****2435	JEFFREY M. JOHNSON	JMJ7 AND SON	5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	NYC		JENNIFER GUERRERO		1936 HEMPSTEAD TURNPIKE EAST MEADOW NY 11554	11/29/2019	11/29/2024
DOL	DOL		JIM PLAUGHER		17613 SANTE FE LINE ROAD WAYNEFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL		JMJ7 & SON CONSTRUCTION, LLC		5553 CAIRNS TRAIL LIVERPOOL NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 AND SONS CONTRACTORS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS		7014 13TH AVENUE BROOKLYN NY 11228	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS AND SONS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS, LLC		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JOHN GOCEK		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL		JOHN MARKOVIC		47 MANDON TERRACE HAWTHORN NJ 07506	03/29/2021	03/29/2026
DOL	DOL		JOHN WASE		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		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		JOSEPH K. SALERNO		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL		JOSEPH K. SALERNO II		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		JRN CONSTRUCTION CO, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028

DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		JULIUS AND GITA BEHREND		5 EMES LANE MONSEY NY 10952	11/20/2002	11/20/3002
DOL	DOL		KARIN MANGIN		796 PHELPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	DOL		KATE E. CONNOR		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KEAN INDUSTRIES, LLC		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL	*****2959	KELC DEVELOPMENT, INC		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KIMBERLY F. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL		KMA GROUP II, INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL	*****1833	KMA GROUP INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL		KMA INSULATION, INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL		KRIN HEINEMANN		2345 ROUTE 52, SUITE 2N HOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	NYC		KULWANT S. DEOL		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028
DOL	DA	*****8816	LAKE CONSTRUCTION AND DEVELOPMENT CORPORATION		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	AG	*****3291	LINTECH ELECTRIC, INC.		3006 TILDEN AVE BROOKLYN NY 11226	02/16/2022	02/16/2027
DOL	DOL		LOUIS A. CALICCHIA		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	NYC		LUBOMIR PETER SVOBODA		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	NYC		M & L STEEL & ORNAMENTAL IRON CORP.		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	DOL	*****2196	MAINSTREAM SPECIALTIES, INC.		11 OLD TOWN RD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DA		MANUEL P TOBIO		150 KINGS STREET BROOKLYN NY 14444	08/19/1998	08/19/2998
DOL	DA		MANUEL TOBIO		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		MAQSOOD AHMAD		618 OCEAN PKWY BROOKLYN NY 11230	09/17/2020	09/17/2025
DOL	NYC		MARIA NUBILE		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	NYC	*****9926	MILLENNIUM FIRE PROTECTION, LLC		325 W. 38TH STREET SUITE 204NEW YORK NY 10018	11/14/2019	11/14/2024
DOL	NYC	*****0627	MILLENNIUM FIRE SERVICES, LLC		14 NEW DROP LNE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	NYC		MUHAMMED A. HASHEM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025

DOL	NYC		NAMOW, INC.		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	DOL	*****7790	NATIONAL BUILDING & RESTORATION CORP		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	*****1797	NATIONAL CONSTRUCTION SERVICES, INC		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	NYC		NAVIT SINGH		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		NELCO CONTRACTING, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028
DOL	DA		NICHOLAS T. ANALITIS		505 MANHATTAN AVE WEST BABYLON NY 11704	10/05/2023	10/05/2028
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****7429	NICOLAE I. BARBIR	BESTUCCO CONSTRUCTION, INC.	444 SCHANTZ ROAD ALLENTOWN PA 18104	09/17/2020	09/17/2025
DOL	NYC	*****5643	NYC LINE CONTRACTORS, INC.		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		PATRICK PENNACCHIO		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL		PATRICK PENNACCHIO		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL		PAULINE CHAHALES		935 S LAKE BLVD MAHOPAC NY 10541	03/02/2021	03/02/2026
DOL	DOL		PETER STEVENS		11 OLD TOWN ROAD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DOL		PETER STEVENS		8269 21ST ST 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
DOL	NYC		RASHEL CONSTRUCTION CORP		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****1068	RATH MECHANICAL CONTRACTORS, INC.		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL	*****2633	RAW POWER ELECTRIC CORP.		3 PARK CIRCLE MIDDLETOWN NY 10940	07/11/2022	07/11/2027
DOL	DA	*****7559	REGAL CONTRACTING INC.		24 WOODBINE AVE NORTHPORT NY 11768	10/01/2020	10/01/2025
DOL	DOL		RICHARD REGGIO		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	DOL		ROBBYE BISSESAR		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		ROMEO WARREN		161 ROBYN RD MONROE NY 10950	07/11/2022	07/11/2027
DOL	DOL		RONALD MESSEN		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL	*****7172	RZ & AL INC.		198 RIDGE AVENUE VALLEY STREAM NY 11581	06/06/2022	06/06/2027
DOL	DOL		SAL FRESINA MASONRY CONTRACTORS, INC.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL		SAL MASONRY CONTRACTORS, INC.		(SEE COMMENTS) SYRACUSE NY 13202	07/16/2021	07/16/2026
DOL	DOL	*****9874	SALFREE ENTERPRISES INC		P.O BOX 14 2821 GARDNER RDPOMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		SALVATORE A FRESINA A/K/A SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	DOL		SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	NYC	*****0349	SAM WATERPROOFING INC		168-42 88TH AVENUE APT.1 AJAMAICA NY 11432	11/20/2019	11/20/2024

DOL	DA	*****0476	SAMCO ELECTRIC CORP.		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	NYC	*****1130	SCANA CONSTRUCTION CORP.		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025
DOL	DOL	*****2045	SCOTT DUFFIE	DUFFIE'S ELECTRIC, INC.	P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	DOL		SCOTT DUFFIE		P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	DA		SILVANO TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DOL	*****0440	SOLAR GUYS INC.		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	NYC		SOMATIE RAMSUNAHAI		115-46 132ND ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	DOL	*****2221	SOUTH BUFFALO ELECTRIC, INC.		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC	*****3661	SPANIER BUILDING MAINTENANCE CORP		200 OAK DRIVE SYOSSET NY 11791	03/14/2022	03/14/2027
DOL	DOL		STANADOS KALOGELAS		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL	*****3496	STAR INTERNATIONAL INC		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	08/11/2003	08/11/3003
DOL	DOL	*****6844	STEAM PLANT AND CHX SYSTEMS INC.		14B COMMERCIAL AVENUE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL	*****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	*****3800	SUBURBAN RESTORATION CO. INC.		5-10 BANTA PLACE FAIR LAWN PLACE NJ 07410	03/29/2021	03/29/2026
DOL	DOL	*****9150	SURGE INC.		8269 21ST STREET BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL		SYED RAZA		198 RIDGE AVENUE NY 11581	06/06/2022	06/06/2027
DOL	DOL		TERRY THOMPSON		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	DOL	*****9733	TERSAL CONSTRUCTION SERVICES INC		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13208	07/16/2021	07/16/2026
DOL	DOL		TERSAL CONTRACTORS, INC.		221 GARDNER RD P.O BOX 14POMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		TERSAL DEVELOPMENT CORP.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL	*****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		TIMOTHY PERCY		29807 ANDREWS ROAD BLACK RIVER NY 13612	10/17/2023	10/17/2028
DOL	DA	*****1050	TRI STATE CONSTRUCTION OF NY CORP.		50-39 175TH PLACE FRESH MEADOWS NY 11365	03/28/2022	03/28/2027
DOL	DA	*****4106	TRIPLE H CONCRETE CORP		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****8210	UPSTATE CONCRETE & MASONRY CONTRACTING CO INC		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	*****6418	VALHALLA CONSTRUCTION, LLC.		796 PHLEPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	NYC	*****2426	VICKRAM MANGRU	VICK CONSTRUCTI ON	21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	NYC		VICKRAM MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DOL		VIKTORIA RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	NYC	*****3673	WALTERS AND WALTERS, INC.		465 EAST AND THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL	*****3296	WESTERN NEW YORK CONTRACTORS, INC.		3841 LAYNARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL	*****8266	WILLIAM CHRIS MCCLENDON	MCCLENDON ASPHALT PAVING	1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028

NYSDOL Bureau of Public Work Debarment List 04/23/2024

Article 8

DOL	DOL		WILLIAM CHRIS MCCLENDON		1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM G. PROERFRIEDT		85 SPRUCEWOOD ROAD WEST BABYLON NY 11704	01/19/2021	01/19/2026
DOL	DOL	*****5924	WILLIAM G. PROPHY, LLC	WGP CONTRACTING, INC.	54 PENTAQUIT AVE BAYSHORE NY 11706	01/19/2021	01/19/2026
DOL	DOL		XENOFON EFTHIMIADIS		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028

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

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 291036-02 titled Rehab of Admin Building Exterior, Phase 1B and carrying out all of the duties and obligations imposed upon the Contractor by the Contract Documents.
    b. The main features of the Work shall include, but not be limited to the following: historic wood building envelope renovation/restoration, window replacement, interior finish restoration, asbestos abatement, storm water drainage system improvements, and associated site work.
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. 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.

3. Projects to consider include: 291072 Site Improvements for ADA Accessibility - Phase 3

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)

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 Sections 2.01 and/or 2.08 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, insert "John Horgan"; in the line starting with Title, insert "Associate Project Coordinator"; in the line starting with Address, insert "H. Carl McCall SUNY Building, 353 Broadway, Albany New York 12246"; and in the line starting with Telephone Number, insert "518-320-3241" and in the line starting with E-mail address, insert "John.Horgan@suny.edu".

2. Amend the Agreement as follows:

Article II, Section 2.06, DELETE "Instructions" and paragraph (4). A full time Project Manager is not required on this Project.

3. 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 18% for Minority-Owned Business Enterprises ("MBE") participation and 12% for Women-Owned Business Enterprises ("WBE") participation **(collectively, "MWBE Contract Goals")**.

i. The 10% 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 5% 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."

4. 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%"

5.

6. Amend the Agreement as follows:

DELETE Article V Section 5.07 Builder's Risk in its entirely and REPLACE with the following:

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.

01 29 00 10 Payment to Campus for Utilities

1. For unmetered utilities used during the work, Contractor’s use shall be at no cost to the Contractor for usage that is reasonable and directly related to the work.

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_1-2023.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

Not Applicable.

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

None.

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 mockups specified in Divisions 2 through 48 shall be addressed by the Contractor at periodic meetings.

2. Provide a list of mockups with their dates for installation to begin, installation completion, Consultant review period (which may be up to 15 working days), punch list corrections, and mockup acceptance.

3. For compliance with Section 3.03 of the Agreement, a mockup shall be considered a Sample. Accepted mockups shall be clearly segregated and marked and remain undisturbed and accessible during the work.

    a. Accepted mockups 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 mockup locations on the Record Drawings.
    e. Where the markings have been removed and not record exists as to which surface was the mockup, the Consultant may either select a different surface as the mockup or direct the Contractor to install another one, at no additional cost to the owner.
    f. Unless an accepted mockup 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 mockup may be observed by the Consultant and shall be employed and maintained in all remaining work. Workers performing the mockup 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 mockup of their work.
5. In addition to the mockups 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, 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 23, "Safety and Protective Facilities," below.

2. In order to assist the Contractor in the planning and scheduling of construction activities, the Contract 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 once 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. Academic Calendar • Office of the Registrar • Purchase College

3. Methods of performing Work shall not hinder the Campus' ability to vacate the building during the first six weeks.

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

Not Applicable.

01 32 13 20 Scheduling of Work - Contractor's Coordination with the with utility companies

Not Applicable.

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: six weeks to vacate the building.
      vi. Requirements for any on site shutdowns that may impact work.
      vii. Training and/or instruction of Campus personnel.
      viii. Periodic meetings on construction fire safety with the Campus Fire Prevention Program Superintendent and other interested parties.
      ix. Meetings on site with Consultant to review mock ups and detailing. Include time for the Consultant to review and consider the work of mockups, 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 monthly 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 as follows: 1.) if more than 120 calendar days remains until the date of Substantial Completion then provide within 30 calendar days after the Consultant’s request, 2.) if less than 120 calendar days remains until the date of Substantial Completion, provide within 15 calendar days after the Consultant’s request. The recovery schedule’s 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 Systems-Fixtures/Trim/Accessories
vii. Interior General Construction
viii. Equipment & Specialties
ix. Exterior Walks, Parking, Roads, & Landscape
x. Testing, Training & Commissioning
xi. Life Safety Systems Tested & Accepted (Milestone Date)
xii. Substantial Completion/ C of O (Milestone Date)
xiii. Start of Guarantee Period
xiv. SUCF Contract Completion Date (if different from above)
xv. Final Completion - All punch list/outstanding items satisfied (Milestone Date)
xvi. 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.)
xvii. 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 Contractor's 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

Not applicable.

01 32 33 30 Roof Inspection

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 one (1) Record Paper Copies:
        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

Not required.

01 33 29 - Sustainable Design Reporting

Not applicable.

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. Within two business days after receipt of the Consultant's direction, remove any postings, defacement, marking, carving, graffiti, or other non-Contract related information on Site at no additional cost to the Fund.
   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 or company identification clothing. 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: Rehab of Admin Building Exterior, phase 1B

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: all thru wall and window mounted air-conditioning units.

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) 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. Contractor to submit a Method of Procedure for protection of the existing wooden stair and handrails. The Method of Procedure must be approved before implementing.

d) Prior to starting demolition, to maintain 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.
https://www.purchase.edu/offices/environmental-health-and-safety/programs-and-procedures/welding-and-hot-work/
and 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 Public Health/Safety Requirements and Guidance for Construction Jobsites

1. The Contractor shall comply 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 in effect at the time of the bid. Such health and safety requirements are made a part of the Contract Work for this Project. All costs and time associated with compliance with such health and safety requirements are included in the Contract consideration in Article IV of the Agreement.

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 effects 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. 291036-02
Project Title: Rehab Administration Building Exterior

Section Number	Section Name	Description of Delegated Design (See Section for complete details)
None		

Note: The above list provides a general summary of work delegated in the technical specifications an 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 Contractors 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 Campuses “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 may be used for small power tools, etc. (≤1/2 HP), without metering and at no cost to the Contractor. Usage shall be limited to existing outlets and/or panels within the Work areas shown or as approved by the Campus. 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 provide and maintain all necessary items to provide temporary power for the project and remove at completion. Install all temporary wiring and equipment and make all connections in conformity with NYS Uniform Fire Prevention and Building Code, National Fire Protection Association, National Electric Code, and all other applicable codes. 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 provide, maintain, and keep in use sufficient 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 contact, 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. If an existing HVAC system exist within the Work area, it is available for use by the Contractor. It is the Contractor's responsibility to determine if the existing HVAC will be able to provide the minimum temperature and humidity levels required during the work; otherwise, provide a temporary HVAC system(s) as required to supplement deficiencies in the existing HVAC system.
2. Temporary HVAC shall be installed, extended, modified, operated, and maintained by the Contractor until Substantial Completion.
   a) Where existing HVAC systems in the Work area(s) rely on Campus controlled portions, the Campus will continue to operate and maintain their portions in the same manner performed prior to bidding. With Campus permission, Contractor may rebalance Campus controlled portions.
   b) Where existing HVAC systems outside the Work area(s) rely on Contractor controlled portions, the Contractor will operate and maintain its portions in a manner that properly maintains the service required by the Campus and comply with Section 01 18 13 Utility Shutdowns and Cutovers for planned outages. Unplanned outages shall be addressed in the emergency action

plan required in Section 01 35 13 Conducting Work. When directed by the Consultant, rebalance Contractor controlled portions as required to provide proper service to systems outside the Work area(s).

3. Temporary HVAC shall be capable of maintaining temperatures between 68°F to 78°F and relative humidity's below 55%, unless otherwise specified by the Contract Documents. If materials being installed, finished and /or maintained require stricter temperature and relative humidity's ranges per the material manufacturer(s) written recommendations, provide additional temporary HVAC to provide manufacturer required conditions during the time periods recommended by the manufacturer(s).
4. To monitor and record temperature and humidity levels, provide a minimum of two (2) data loggers per Work area plus one additional data logger for each additional 5,000 square foot of Work area.
   a) The initial location of the data loggers and any relocation required during the progression of the project shall be as directed by the Consultant.
   b) Periodically transfer electronic 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 in records available upon request of the Consultant. Also upon request, provide the electronic data shall to the Consultant.
   c) Data loggers shall be HOBO MX1101 by Onset or equivalent with Accuracy: +/- 0.2C and +/- 2%RH
5. The Contractor is solely responsible for damages to existing/new work, materials and/or equipment within the Work area(s) caused by the failure of the Contractor to maintain the required environmental space conditions temperature and humidity levels. Damaged materials and/or equipment shall be replaced to the satisfaction of the Consultant and at the sole cost and expense of the Contractor.
6. Temporary HVAC systems shall comply with NYS Uniform Fire Prevention and Building Code, National Fire Protection Association, and all other applicable codes.
7. The permanent HVAC system of the Project may be used by the Contractor, with the approval of the Consultant and the Fund, to provide temporary HVAC. In the event the Contractor so uses the permanent HVAC system:
   a) It must place said system in perfect working order and in essentially new condition prior to the Fund's acceptance of the Project.
      The period of the guarantee of the permanent HVAC system will commence at the time of the Substantial Completion of the Project.

01 51 26 Temporary Light

1. Provide temporary lighting in the entire Work area(s) as soon as practical. Existing lighting, if available, may be utilized to provide some or all temporary lighting. Extend/relocate/modify/maintain temporary lighting to suit progress of work.
2. Provide a minimum of 10-foot candles in the entire Work area(s) as measured at the floor level. In stairs and exit aisles/paths/ways, maintain lighting levels for 24 hours, 7 days per week; in all other spaces, maintain temporary lighting during working hours.
3. All temporary lighting shall comply with the NYS Uniform Fire Prevention and Building Code, National Fire Protection Association, National Electric Code, and all other applicable codes.
4. Unless otherwise directed by the Consultant, operate and maintain temporary lighting until Substantial Completion.
5.

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

1. Within two (2) weeks of receipt of the Notice to Proceed, provide for the services and new equipment listed below at the existing field office space used by the Site Representative(s):
2. The Contractor, until all the work covered by the Contract is accepted by the Fund, shall provide the following for the exclusive use of Purchase College and the State University Construction Fund. Office equipment and furniture shall be new and consist of the following items:

a. SUCF Field Office Trailer weekly janitorial services, including cleaning supplies left on site for use.

b. Office equipment shall consist of the following items:
   1. Maintain service contract for existing “all-in-one” copier/fax/scanner with network capabilities for Epson WF-7820/WF-7840.
   2. Water and cups for the existing water cooler for the duration of the contract.

c. Office Supplies for the SUCF Trailer: (requires submittals)
   1. Epson WF-7820/WF-7840 printer replacement ink cartridges & accessories for the duration of project;
   2. 10 boxes of 8.5x11 white paper for copier
   3. 2 boxes of 11x17 white paper for copier
   4. 1 box of manila folders
   5. 2 boxes dry board markers (assorted colors)
   6. Plug-in Bathroom air freshener ((10) cartridges)
   7. Ten pair safety glasses, Milwaukee or equivalent.

All of the above items are to become the exclusive property of the Campus at the end of the project. Prior to purchase, submit detailed information for the above items to the Consultant for approval. Prior to removal of any computer equipment, phone, tablet and/or data storage device, the Contractor shall provide the services of a firm experienced in computer services to visit the field office when directed by the Consultant, permanently erase and delete all data stored on such equipment and demonstrate to the Consultant that all data has been permanently deleted. The Contractor is not responsible for all expendable office supplies except for those specifically noted above.

01 52 19 Temporary Sanitary Facilities

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/public. 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

Not used.

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 and Section 302 Property Maintenance 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 incompliance 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 their Oil Spill Prevention Control and Countermeasure (SPCC) Plan as an amendment. 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. Provide any extra reinforcement or modification required to the foundations, steel, concrete, curtain wall, roofing, or any other building component to accommodate the delivery of permanent machinery or equipment, or to accommodate any temporary equipment required by the Contractor for hoisting or for other means and methods of construction. Any such modifications to the Contract Documents shall be signed and sealed by a licensed New York State engineer and submitted for review by the Consultant.

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 Applicable

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.

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

None.

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	Lubicate 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 01 33 23 20 “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.

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

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.

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. Demolition and removal Work on Site shall be limited to the minimum work required to create debris that allows for reasonable handling and transport. Additional work on debris, 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.

    e. 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.

    f. 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.

g. 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.

h. 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.

i. 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.

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.

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, implement a construction and demolition (C&D) waste management plan which recycles at least 50% of the non-hazardous building C&D waste generated.
    a. In conjunction with monthly payment applications, submit a waste management reporting form for all materials transferred from the project site for recycling or disposal. Reporting form shall:
        i. Include receipts or other documentation from the disposal and/or recycling facility of the quantity and type of materials transferred.
        ii. Provide the name and address of the disposal facilities and/or recycling facilities where materials will be disposed or recycled.
        iii. Report all the material quantities either by weight or volume. To convert volume into weight use the US EPA conversion rates.
        iv. 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.
        v. Show the percentage of recycling achieved to date.
    b. Within 30 days after Substantial Completion, submit the total quantities for all C&D and the percentage of materials which were recycled.
    c. 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. 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 75 10 Consumables used during the Work.

Except for energy, fuel, and/or water specified as provided by the Campus, provide all consumable parts, fluids, gases, materials, products, energy, and fuel(s) required for transporting, assembling, erecting, installing, start-up and commissioning, and testing of the materials prior to Substantial Completion, including consumable supplies normally consumed in the assembly, erection, installation, start-up and commissioning, and testing, and maintenance of the Work until Substantial Completion of the Project. Such consumable parts shall not include any spare parts, attic stock, or any consumable parts specified in Divisions 1 through 48, inclusive, for turnover to the Campus.

01 78 23 Operations and Maintenance Manuals (O&M's)

1. O&M's Submissions
    a. The O&M's applicable to this Contract must be substantially completed before the Project can be used for the purpose for which it was intended.
    b. In accordance with the approved submittal schedule in Section 01 32 16 Project Schedule, provide the applicable O&M's as required per the Submittal sections of the Technical Specifications for review, concurrent with all other required submittals.
    c. Assemble and submit final O&M's prior to requesting inspection for Substantial Completion and at least 45 days before the training detailed in section 01 79 00 Training of Campus Personnel and the applicable Technical Specifications. Consultant and Commissioning Authority (CxA) will provide comments on the final O&M's within 15 days of receipt.
        i. Correct or revise each manual to comply with Consultants and CxA's comments. Submit copies of each corrected O&M's within 15 days of receipt of the Consultant's and CxA's comments and at least 15 days prior to commencing training detailed in section 01 79 00 Training of Campus Personal and the applicable Technical Specifications.
    d. Unless otherwise approved by the Fund, in the Contract Breakdown required by Section 4.08 of the Agreement, the scheduled value of Contractor provided O&M's shall be 5% of the estimated value for the Work covered in the O&M's
    e. The Contractor shall furnish one (1) complete bound paper copies and PDF/A files of O&M's for all systems, subsystems, and pieces of equipment involved in the Contract. O&M's 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. PDF/A copies shall be 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. All documents shall be 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.
    f. Final copies shall be complete except for copies of original warranties and other items approved by the Consultant for turnover on the date of Substantial Completion.
2. General requirements for O&M's:
    a. Organization: Organize the O&M's into separate volumes/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 volumes/sections alphabetically. Each volume shall contain the following materials, in the order listed:
        i. Title Page.
        ii. Table of Contents.
        iii. Volume Contents:
            1. Operation Data.
            2. Product Maintenance Data.
            3. Systems and Equipment Data.

b. Title Page: Include the following information:
    i. Subject matter included in volume
    ii. Name and address of Project and Owner
    iii. Date of submittal
    iv. Name and contact information for:
        1. Contractor and Major Subcontractors.
        2. Construction Manager.
        3. Consultant and Major Subconsultant.
        4. Commissioning Agent.
        5. Cross-references to related system in other O&M's
c. Table of Contents: List each product included in O&M's, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
    i. If O&M's documentation requires more than one volume to accommodate data, include a comprehensive table of contents for all volumes in each volume of the set.
d. Volume Contents: Organize into sets of manageable size. Arrange contents alphabetically by CSI number, system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single volume.
e. Manufacturers' Data: Where O&M's contains manufacturers' standard printed data: include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data includes more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
    i. Prepare supplementary customized narrative text if manufacturers' standard printed data are not available or where project specific information is necessary for proper operation and maintenance of equipment or systems.
f. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of standard component parts of equipment and systems and to illustrate actual control sequences and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
    i. Do not bind as part of O&M's the Record Drawings provided in accordance with Section 2.24 of the Agreement.
g. When multiple binders are required, use the same type and size of binder for each volume
h. Internally subdivide the binder contents with permanent page dividers, logically organized as described below, with tab titles clearly printed under reinforced laminated plastic tabs:
i. Use 8-1/2 x 11-inch text pages bound in spring post binders with durable plastic covers and sides identified with printed titles "OPERATION AND MAINTENANCE MANUALS", 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

3. Operation Data
    a. Content: Organize Operation Data into a separate section, within the O&M's.
    b. Engage a manufacturer authorized service representative(s) to provide and prepare the information.
    c. Prepare a separate section indicating operation of each system and subsystem, and piece of equipment not part of a system in the form of an instructional manual for use by operating personnel.
    d. In addition to requirements in this section include operation data as required in the Technical Specification sections.
        i. System, subsystem, and equipment descriptions. Use designations for systems, subsystems and equipment indicated on Contract Documents.
        ii. Operating standards.
        iii. Operating procedures.
        iv. Operating logs.
        v. Wiring diagrams, as installed.
        vi. Control diagrams, as installed. Describe the sequence of operation, and diagram controls as/where required for identification.
        vii. Piped system diagrams, as installed and identify color-coding as installed.
        viii. Precautions against improper use.
        ix. License requirements, if any, including inspection and renewal dates.
    e. Description of system, subsystem, or equipment, as applicable, including:
        i. Product name and model number. Use designations for products indicated on Contract Documents.
        ii. Manufacturer's name.
        iii. Equipment identification with serial number of each component.
        iv. Equipment function.
        v. Operating characteristics.
        vi. Limiting conditions.
        vii. Performance curves.
        viii. Engineering data and tests.
        ix. Complete nomenclature and number of replacement parts.
    f. Operating instructions and procedures, including:
        i. Startup procedures.
        ii. Equipment or system break-in procedures.
        iii. Routine and normal operating instructions.
        iv. Regulation and control procedures.
        v. Instructions on stopping.
        vi. Normal shutdown instructions.
        vii. Seasonal and weekend operating instructions.
        viii. Required sequences for electric or electronic systems.
        ix. Special operating instructions and procedures.

4. Product Maintenance Data
    a. Content: Organize Product Maintenance Data into separate section, within the O&M's, for each product, material, and finish. Include source information, product information,

maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

b. Source Information: List each product included in section identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross reference specification section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
c. Product Information: Include the following, as applicable:
    i. Product name and model number.
    ii. Manufacturer's name.
    iii. Color, pattern, and texture.
    iv. Material and chemical composition.
    v. Reordering information for specially manufactured products
d. Maintenance Procedures: Include manufacturer's written recommendations and the following:
    i. Inspection procedures.
    ii. Types of cleaning agents to be used and methods of cleaning.
    iii. List of cleaning agents and methods of cleaning detrimental to product.
    iv. Schedule for routine cleaning and maintenance.
    v. Repair instructions.
e. Repair Materials and Sources: Include a list of materials and local sources of materials and related services.
f. Warranties and Guarantees: Include copies of warranties and guarantees lists of circumstances and conditions that would affect validity of warranties.
    i. Include procedures to follow and required notifications for warranty claims.

5. Systems and Equipment Maintenance Data
    a. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers maintenance and documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
    b. Source Information: List each system, subsystem, and piece of equipment included in a separate section within the O&M's identified by product name, and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
    c. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
        i. Standard maintenance and repair instructions and bulletins.
        ii. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
        iii. Identification and nomenclature of parts and components.
        iv. List of items recommended to be stocked as spare parts with parts identified and cross-referenced to manufacturers' maintenance documentation.

d. Maintenance procedures: Include the following information and items that detail essential maintenance procedures:
    i. Test and inspection instructions.
    ii. Troubleshooting guide.
    iii. Precautions against improper maintenance.
    iv. Disassembly; component removal, repair, and replacement; and reassembly instructions.
    v. Aligning, adjusting, and checking instructions.
    vi. Demonstration and training video recording, if specified.
e. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
    i. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
    ii. Maintenance and Service Record: Include manufacturers' forms for recording maintenance and inspection.
f. Spare parts list and source information: Include list of replacement repair parts, with parts identified and cross referenced to manufacturers' maintenance documentation and local sources and maintenance materials and related services.
g. Warranties: Include copies of warranties and list of circumstances and conditions that would affect validity of warranties.
    i. Include procedures to follow and required notifications for warranty claims.

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 warrantied.

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.

****End of 01 00 00 General Requirements***

PROJECT No. 291036-02

Contractor Job #:

Project Name: Rehab Administration Building Exterior
Revised By:
DATE:

Status Key: **NYS** - Not Yet Submitted **SCH** Scheduled for submission **SUB** - Submitted & Recieved **APP**-Approved No Exceptions Taken **MCN**- Make Corrections Noted **R&R**- Revise & Resubmit **REJ**- Rejected **SSI**- Submit Specified Item **RFR** - Resubmit for Record Only
Submittal Type Key: **SD** - Shop Drawing **DAT** - Project / Product Data **SAM** - Sample **CAL** - Calculations **TEST** - Test report **WAR** - Warranty **CERT** - Certification **QC** - Quality Control / Qualifications submittal **EXT** Extra Stock / tool **OMM** - Operations Maintenance Manual **REP** Report **OTH** - descr in comments

Contractor ID No.	CSI Section No.	Paragraph No.	Revision / Version No. (if appl.)	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 Install. Conf. Date	Mock up inspected Date	Other (desc.)	Comments
	00 52 00	Section 2.18		List of Subcontractors	Action	DAT	NYS															Due prior to work and not later than 30 days after NTP
	00 52 00	Section 2.12		Site Conditions	Informational	REP	NYS															if needed
	00 52 00	A-Sec 2.24(3)		Record Drawings	Informational	OTH	NYS															
	00 52 00	A-Sec 3.06		Monthly Reports	Informational	REP	NYS															
	00 52 00	A-Sec 4.08		Schedule of Values	Action	OTH	NYS															
	00 52 00	A-Sec 6.07-1		MBE/WBE Monthly Utilization Reports (online only)	Informational	REP	NYS															
	00 52 00	A-Sec 2.06		Superintendent Submission	Action	OTH	NYS															
	01 18 13			Utility Shutdown Schedule	Action	OTH	NYS															
	01 26 13			Request for Information (RFI) log	Action	OTH	NYS															
	01 29 00 10			Meter readings	Informational	DAT	NYS															monthly
	01 31 13 10			Existing Conditions reports	Informational	REP	NYS															if needed
	01 31 19			bi-weekly reports	Informational	REP	NYS															
	01 32 13 10			Off campus street access	Informational	REP	NYS															if needed
	01 32 16			Project Schedule and Submittal Schedule	Action	OTH	NYS															
	01 32 33			Project Photographs	Informational	REP	NYS															Due prior to work
	01 33 23			Submittal management website	Action	OTH	NYS															if needed
	01 33 23			Archival submittals	Informational	OTH	NYS															if needed
	01 33 23 10			Coordination Drawings	Action	SD	NYS															Due prior to work
	01 33 29			Sustainable Design Reporting	Informational		NYS															
	01 35 13			emergency action plan	Informational	DAT	NYS															
	01 35 13			daily reports	Informational	REP	NYS															Due before waste leaves site
	01 35 13			ID Badge Format	Informational	OTH	NYS															
	01 35 13			daily manpower counts	Informational	REP	NYS															
	01 35 23			Safety Procedures Manual	Informational	DAT	NYS															
	01 35 23			Names of "competent" persons	Informational	DAT	NYS															
	01 35 23			Pre-Demolition utility plan	Informational	SD	NYS															
	01 35 23			Approved Confined Space Permits	Informational		NYS															
	01 35 23			Temporary Egress / Barrier Plan	Informational	OTH	NYS															
	01 35 23 10			MSDS sheets	Informational	DAT	NYS															if needed
	01 41 13			Special Inspection submissions	Action	TEST	NYS															
	01 41 13			Fire Alarm System License	Informational	OTH	NYS															
	01 41 13			Code test and inspection forms	Action	REP	NYS															
	01 41 13			Name of Commissioning contact	Action	REP	NYS															
	01 41 16			Diesel vehicle forms	Informational	DAT	NYS															if needed
	01 41 16			Cooling tower maintenance plan	Action	REP	NYS															
	01 51 16			Fire watch plan	Action	REP	NYS															
	01 52 13			Field Office equipment information	Action	REP	NYS															
	01 54 13			Plan for Use of Elevator(s) for Construction	Action	REP	NYS															
	01 55 26			Temporary Traffic Control plans	Action	SD	NYS															
	01 55 29			lifting procedure safety plan	Informational	DAT	NYS															if needed
	01 55 29			Petolium Spill Compliance Certification	Informational	OTH	NYS															
	01 60 00 20			Vermiculite origins certification	Informational	OTH	NYS															
	01 64 00			Campus-Furnished Products submittals	Action	SD	NYS															if needed
	01 66 00			Preventive maintenance log	Action	REP	NYS															
	01 71 23			Field Engineering surveys	Informational	DAT	NYS															
	01 73 00 10			Information for Rebates/Grants/Awards/Programs	Informational	DAT	NYS															
	01 74 00			Fluid system flushing and Clean Up plan	Informational	DAT	NYS															
	01 74 00			Final Cleanup Plan	Informational	DAT	NYS															
	01 74 16			Planting Maintenance logs	Informational	DAT	NYS															
	01 74 19			Construction Waste Management Plan	Action	OTH	NYS															
	01 74 19			Construction Waste manifests/monthly reports	Action	OTH	NYS															
	01 78 23			Operating Instructions and Manuals	Action	OTH	NYS															
	01 78 36			Warranties	Action	OTH	NYS															
	01 79 00			Schedule of Campus training	Action	OTH	NYS															
	01 79 00			Outlines of actual training	Action	OTH	NYS															

PROJECT No. 291036-02

Contractor Job #:

Project Name: Rehab Administration Building Exterior
Revised By:
DATE:

Status Key: **NYS** - Not Yet Submitted **SCH** Scheduled for submission **SUB** - Submitted & Recieved **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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	02 03 50			Scope of Site Work	Action		NYS															
	02 03 60			Temporary Soil Erosion, Sediment and Dust Control	Action		NYS															
	02 30 70			Site Preparation	Action		NYS															
	02 03 80			Excavation and Embankment	Action		NYS															
	02 03 90			Trench Excavation and Backfill	Action		NYS															
	02 04 00			Storm Drainage	Action		NYS															
	02 22 00			Site Demolition	Action		NYS															
	02 23 00			Site Clearing	Action		NYS															
	02 30 00			Earthwork	Action		NYS															
	02 37 40			Erosion Control Devices	Action		NYS															
	02 41 20			Removal, Cutting and Patching	Action		NYS															
	02 48 00			Landscape Work	Action		NYS															
	02 63 40			Drainage Pipe & Drains	Action		NYS															
	02 63 50			Corrugated Polyethylene Storm Drain Pipe & Fittings	Action		NYS															
	02 72 20			Precast Concrete Catch Basins & Manholes	Action		NYS															
	02 82 13			Asbestos Abatement	Action		NYS															
	02 82 15			Asbestos Encapsulation	Action		NYS															
	04 01 20			Masonry Restoration and Cleaning	Action		NYS															
	06 10 00			Rough and Finish Carpentry	Action		NYS															
	06 40 23			Architectural Woodwork	Action		NYS															
	07 13 26			Sheet Membrane Waterproofing	Action		NYS															
	07 21 00			Building Insulation	Action		NYS															
	07 31 13			Asphalt Shingle Roofing	Action		NYS															
	07 46 00			Wood Siding and Trim	Action		NYS															
	07 61 00			Sheet Metal Flashing and Roofing	Action		NYS															
	07 90 00			Joint Sealers	Action		NYS															
	08 14 00			Wood Doors and Hardware	Action		NYS															
	08 52 00			Wood Windows and Glazed Doors	Action		NYS															
	09 02 10			Interior Plaster Patching	Action		NYS															
	09 29 00			Gypsum Board Assemblies	Action		NYS															
	09 90 00			Painting & Finishing	Action		NYS															
	22 05 17			Sleeves And Sleeve Seals For Plumbing Piping	Action		NYS															
	22 05 18			Escutcheons For Plumbing Piping	Action		NYS															
	22 05 23.12			Ball Valves For Plumbing Piping	Action		NYS															
	22 05 29			Hangers And Supports For Plumbing Piping And Equipm	Action		NYS															
	22 05 53			Identification For Plumbing Piping And Equipment	Action		NYS															
	22 07 19			Plumbing Piping Insulation	Action		NYS															
	22 11 16			Domestic Water Piping	Action		NYS															
	22 11 19			Domestic Water Piping Specialties	Action		NYS															
	22 13 16			Sanitary Waste And Vent Piping	Action		NYS															
	22 13 19			Sanitary Waste Piping Specialties	Action		NYS															
	23 05 17			Sleeves and Sleeve Seals for HVAC Piping	Action		NYS															
	23 05 23.11			Globe Valves for HVAC Piping	Action		NYS															
	23 05 23.12			Ball Valves for HVAC Piping	Action		NYS															
	23 05 23.15			Gate Valves for HVAC Piping	Action		NYS															
	23 05 29			Hangers and Supports for HVAC Piping and Equipment	Action		NYS															
	23 21 16			Hydronic Piping Specialties	Action		NYS															
	23 83 16			Radiant-Heating Hydronic Piping	Action		NYS															
	26 05 11			General Provisions For Electrical Work	Action		NYS															
	26 05 19			Low-Voltage Electrical Power Conductors And Cables	Action		NYS															
	26 05 26			Grounding And Bonding For Electrical Systems	Action		NYS															
	26 05 29			Hangers And Supports For Electrical Systems	Action		NYS															
	26 05 33			Raceways And Boxes For Electrical Systems	Action		NYS															
	26 05 44			Sleeves And Sleeve Seals For Electrical Raceways And	Action		NYS															
	26 05 53			Identification For Electrical Systems	Action		NYS															
	26 09 23			Lighting Control Devices	Action		NYS															
	26 24 16			Panelboards	Action		NYS															
	26 27 26			Wiring Devices	Action		NYS															
	26 28 16			Enclosed Switches And Circuit Breakers	Action		NYS															
	26 52 19			Emergency And Exit Lighting	Action		NYS															
	31 10 00			Site Preparation and Demolition	Action		NYS															
	32 14 00			Unit Paving	Action		NYS															
	32 12 16			Asphalt Pavement	Action		NYS															
	32 92 00			Turf and Grasses and Fine Grading	Action		NYS															
	32 94 10			Landscape Edging	Action		NYS															

Weekly Fire Code Review

SUCF Project No. 291036-02

Contractor: _____ Firm ID: _____

Location(s): _____

Contractor Fire Prevention Program Superintendent: _____

Campus Fire Prevention Program Manager: _____

Code Enforcement Official (CEO): _____

#	*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.*	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?	☐	☐	☐

SUCF Project No. 291036-02

#	*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.*	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 son 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 demolotion?	☐	☐	☐
	☐ 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:			

SUCF Project No. 291036-02

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.: 291036-02

Project Title: Rehabilitate Administration Building Exterior

Building Name: Administration Building Occupancies: B, A-3 Risk Category: II

Registered Design Professionals in Responsible Charge (RDPRC):

	(Name)	(Address)
Architect:	Michael Nieminen (PE)	115 Fifth Avenue, New York, NY 10003
Structural Engineer:	Rick Zottola (LERA)	40 Wall Street, Floor 23, New York, NY 10005
Mechanical Engineer:		

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 required per 1704.6, and noted in this Statement of Special Inspections.

(Affix professional seal)

Structural Engineer

Rick Zottola 8/8/2024

(Print name / date)

(Signature)

(Affix professional seal)

Architect

Michael Nieminen 8/8/2024

(Print name / date)

(Signature)

(Affix professional seal)

Mechanical Engineer

(Print name / date)

(Signature)

-> 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.

-> Wind-Force-Resisting Systems:

- ☐ Wind Exposure Category B, basic design wind speed (V) 155 mph or greater.
- ☒ Wind Exposure Category C or D, basic design wind speed (V) 143 mph or greater.
- ☐ Special Wind Region (1609.3 Figures)
- ☐ Windborne Debris Region (1609.2)

Materials, systems, and work required to have special inspections, tests or observation

(Registered Design Professional In Responsible Charge **shall insert documentation immediately following this page** into the report.)
Check all below that is included in the project and has required special inspections testing and/or structural observations per Chapter 17:

- ☐ Steel Construction
- ☐ Concrete Construction
- ☐ Masonry Construction
- ☐ Wood Construction
- ☒ Soils
- ☐ Driven deep foundations
- ☐ Cast-in-place deep foundations
- ☐ Helical pile foundations
- ☐ Fabricated items
- ☐ Sprayed fire-resistant materials
- ☐ Mastic and intumescent fire-resistant coatings
- ☐ Exterior insulation and finish systems
- ☐ Fire-resistant penetrations and joints
- ☐ Smoke control systems
- ☐ Special cases
- ☐ Fabricated assemblies
- ☐ Other

☒ Structural Observations (Refer to drawing sheet S001)

☐ Wind Requirements

☐ Seismic Requirements

☒ Documentation reporting requirements

☒	**WOOD CONSTRUCTION:** **Special Inspection is required.**				
	Type	**Con-tinuous**	**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 and Testing are required.**				
	Type	**Con-tinuous**	**Periodic**	**Reference Standard**	**Code**
☐	Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	-	X	Contract docs' drawings, and specifications including section 002038	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			

	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		Pretension Tendons
		☐	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
			Post-Tension Tendons
		☐	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.: 291036-02

Project Title: Rehabilitate Administration Building Exterior

Building Name: Administration Building

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)

Special Inspector / Approved Agency Final Report to RDPRC

SUCF Project No.: 291036-02

Project Title: Rehabilitate Administration Building Exterior

Contractor: _____

Special Inspector / Approved Agency: _____

We have completed the tasked 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 and the Building Official.

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)	(Company Name)
_____	_____
(Print Name)	(Print Title)

DIVISION 2 - SITE CONSTRUCTION

SECTION 020350 – SCOPE OF SITE WORK

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes providing all labor, plant, material and equipment that is necessary and required to complete the Site Development Work in accordance with the Contract Documents.

B. Work shall include, but not be limited to: administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Construction, establishment and maintenance of temporary soil erosion, sediment and dust control measures.
2. Construction layout.
3. Clearing and grubbing.
4. Protection of existing structures, utilities and features which are to remain.
6. Providing and maintaining temporary construction fencing, signs and site lighting.
7. Maintenance and protection of traffic.
8. Construction and maintenance of access road and staging area.
9. Stripping and stockpiling of topsoil.
10. Excavation and placement of compacted fills.
11. Disposal of unsuitable and/or surplus excavated material.
12. Compaction of all subgrades.
13. Placement of topsoil and permanent and/or temporary seeding and mulching of all disturbed areas as specified.
14. Installation of storm drainage system including pipe, structures, appurtenances, and connections to existing storm drain facilities; and including installation of building leader drains from the storm drainage system to the building(s).
15. Completion of fine grading.
16. Restoration of curbs and sidewalks.
17. Pavement restoration.
18. Restoration of pavement striping, and markings in kind.
19. Seeding and grass establishment and maintenance.

C. Work Not Included - Work under this Contract shall not include:

1. Any relocation of utilities other than storm drainage lines.
2. In the event of interference, the Engineer of Record shall be notified to perform a site visit to view the conditions Cables for primary electric service and including furnishing transformer.
2. Cables for secondary electric service.
3. Cables for telephone service.
4. Gas line and meter for gas service.
5. Installation of underground primary electric service, except cables and furnishing transformer, which shall be coordinated with and meet the requirements of the Electric Company.

6. Installation of underground secondary electric service, except cables, which shall be coordinated with and meet the requirements of the Electric Company.
7. Installation of underground telephone service, except cables, which shall be coordinated with and meet the requirements of the Telephone Company.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 020350

SECTION 020360 – TEMPORARY SOIL EROSION, SEDIMENT AND DUST CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes temporary soil erosion, sediment, and dust control.

B. The Contractor shall provide all temporary control measures as shown on the Drawings.

C. Work shall include, but not be limited to, the installation and maintenance of berms, ditches, fiber mats, straw, netting, gravel, silt fences, mulches, hay bales, grasses, silt traps, silt sacks and other approved erosion control devices or methods and the removal of such temporary erosion control devices when no longer needed.

D. The work shall also include, but not be limited to, furnishing and applying water, calcium chloride or other approved materials for dust control.

1.2 WORK SPECIFIED UNDER OTHER ARTICLES

A. The following related work is specified under other Articles:

1. Site preparation.
2. Storm drainage.
3. Landscape work.

1.3 COORDINATION WITH PERMANENT CONTROL FEATURES

A. The temporary control provisions contained herein shall be coordinated with the permanent erosion control features specified elsewhere in the Contract Documents to the extent practical to assure economical, effective and continuous erosion control throughout the construction and post construction period.

1.4 COMPLIANCE WITH OTHER REGULATIONS

A. The Contractor shall comply with the requirements of the permits and all applicable Federal, State, County, and Local statutes and ordinances relating to the prevention and abatement of soil erosion, sediment and dust.

B. In the event of conflict between the requirements of these Specifications and the pollution control laws, rules and regulations of Federal, State, County, Local or other Authorities having jurisdiction, the more restrictive laws, rules and regulations shall govern.

1.5 Vacant

1.6 SCHEDULE OF WORK

A. Contractor to Submit Erosion Control Schedule: Prior to the start of construction, the Contractor shall submit his program and schedule for installation of temporary and permanent erosion control work applicable during all stages of construction, and his plan for disposal of waste materials. Where erosion is likely to be a problem, clearing and grubbing operations shall be scheduled so that grading operations and permanent erosion control features can follow immediately thereafter, if the Project conditions permit, otherwise temporary erosion control measures may be required between successive construction stages. No work shall be started until the Erosion Control Schedule and methods of operations have been accepted.

B. Temporary Erosion Control Measures: Temporary erosion control measures shall be used to correct conditions which develop during construction, that are needed prior to installation of permanent control features, or that are temporarily needed to control erosion that develops during normal construction practices, but which are not associated with permanent control features on the Project. Additional temporary erosion control measures that may be required due to Contractor's failure to maintain erosion control devices or due to Contractor's construction procedures, staging, etc. shall be done by the Contractor at his own expense.

C. Permanent Erosion Control Measures: The Contractor shall incorporate all permanent control features into the Project at the earliest practical time as outlined in his Schedule.

1.7 CONDUCT OF WORK

A. General Requirements: The Contractor shall conduct his operations to minimize erosion of soils and to prevent silting and muddying adjacent rivers, streams, impoundments (lakes, reservoirs, etc.) and lands adjacent to or affected by the Work. Construction of drainage facilities and performance of the Contract Work which will contribute to the control of erosion and sedimentation shall be carried out in conjunction with the earthwork operations or as soon thereafter as practicable. The area of bare soil exposed at any one time by construction operations shall be kept to a minimum.

B. Sediment: Water from operations containing sediment shall be treated by filtration, sediment basins or other approved means sufficient to reduce the sediment content to not more than that of the stream or drainage system into which it is discharged.

C. Pollutants: Pollutants such as wash water from concrete mixing operations, fuels, oils, lubricants, and other harmful materials shall not be discharged into rivers, streams, ponds, water impoundment areas, watercourses, drainage ways, channels, drainage ditches, catch basins or drainage or sewer systems.

D. Dust Control: Throughout all operations covered by this Contract, the Contractor shall provide all necessary measures to control dust through the use of water, calcium chloride, or other approved material.

1.8 AREA OF WORK

A. Limit of Area of Work: In general, the limit of the area of clearing and grubbing and/or excavation and fill operations in progress shall be commensurate with the Contractor's capability and progress in keeping the finished grading, mulching, seeding and other such permanent control measures current and in accordance with the accepted Schedule.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 020360

SECTION 020370 – SITE PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes all labor, plant, material and equipment to prepare the site for construction in accordance with the Contract Documents.

B. Work shall include, but not be limited to:

1. Construction layout.
2. Field office.
3. Temporary services.
4. Clearing and grubbing.
5. Removal of structures, obstructions and utilities.
6. Protection of existing structures and utilities to remain.
7. Protection of existing trees, landscaping and natural features to remain.
8. Maintenance and protection of traffic.
9. Construction and maintenance of access road and staging area.
10. Clean-up and restoration.

1.2 WORK SPECIFIED UNDER OTHER ARTICLES

A. The following related work is specified under other Sections:

1. Temporary Soil Erosion, Sediment and Dust Control.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 CONSTRUCTION DETAILS, GENERAL

A. Locations shown on Drawings not Guaranteed: The structures, utilities, trees, shrubs and other features shown on the Drawings are those known to exist, but their locations are not guaranteed to be exact, nor is it guaranteed that all structures, utilities, trees, shrubs and features are shown. The Contractor shall, however, be responsible for the protection of all items and features which are to remain whether shown on the Drawings or not.

B. Safeguards and Protection: The Contractor shall provide all necessary safeguards including the installation of shoring, structural supports, protective fencing and barriers, etc., as may be required to prevent damage to adjacent property or injury to persons. All work shall be done in accordance with the requirements of the local building codes and the rules, regulations and

ordinances of all other governing bodies having jurisdiction. The Contractor shall be held responsible for any claim arising from his failure to provide proper safeguards or for his failure to conduct his operation in a manner consistent with the rules, regulations and ordinances of those governing bodies having jurisdiction.

1. At the end of each workday, the Contractor shall secure the site to ensure that all safety measures, including fences, barricades, etc. are in place and there are no unprotected hazards on the site.
2. Construction fencing shall be always maintained during the construction operations in accordance with the requirements of OSHA and all Authorities having jurisdiction.

C. Replacement of Disturbed Ground Surfaces: The Contractor shall, at his own expense, repair or replace all ground surfaces, pavements, sidewalks, curbs, etc., which are to remain and which may become disturbed or damaged due to his operations.

D. Damage: The Contractor, at his own expense, shall make good, repair and/or replace all damage occurring as a direct or indirect result of his operations.

E. Notification of Utility Owners: Under 16 NYCRR 753 "Protection of Underground Facilities", prior to the start of his work, the Contractor shall be required to notify the One-Call Notification System serving the area of the proposed Work and to contact and notify separately owners of utilities that do not belong to the One-Call Notification System on file with the Central Registry serving the College of Scarsdale so that all the various underground utility operators will be able to locate and mark the locations of their own utilities. Notification of operators of utilities must be made at least two (2) days and not more than ten (10) days prior to the start of any construction and as required by State and Local laws. No work by the Contractor shall commence until the operators have notified the Contractor that their utilities have been located. The Contractor shall be held responsible for any claims arising from his failure to make such notification, or for his failure to do the work in accordance with the rules and regulations of the governing Authorities and owners of the utilities involved.

F. Test Pits: Wherever the proposed utilities cross or connect to existing utilities, the Contractor will be required to hand excavate test pits to determine location and elevation of the existing utilities. This work is to be done prior to any trench excavation. In the event of conflict between the existing utility and the proposed utility.

3.2 CONSTRUCTION LAYOUT

A. General Requirements: The Contractor shall provide all work required in connection with the layout for construction of the Work. The Contractor shall be responsible for establishing property lines, easement lines, base lines, control points and benchmarks which shall be maintained and protected throughout the life of the Contract. The Contractor shall employ a land surveyor, licensed in the State of New York, to do the layout work, who shall establish locations, alignments, elevations, reference marks, off-set lines, batter boards, etc., needed by the Contractor during the progress of the Work, and from time to time to verify such marks by instrument or other appropriate means.

C. Contractor to Protect and Maintain Control Points: The Contractor shall be responsible for protecting and maintaining the points that he has established and also any control points that may be furnished by the College.

D. Contractor's Responsibility: The Contractor shall make, check, and be responsible for all measurements and dimensions necessary for the proper construction and installation of all items of work under this Contract. The Contractor shall be responsible for the finished Work in conformance with the lines, grades and locations called for on the Drawings, and he shall correct all errors caused by improper layout of the Work or due to errors by his personnel at no additional cost to the College.

E. Payment: No additional payment will be made for construction layout; compensation shall be considered as included in the Contract Sum.

3.3 CLEARING AND GRUBBING

A. General Requirements: Except for the existing trees which have been designated or marked "To Be Saved" or "To Remain" the area within the limits of earthwork shall be cleared of trees, logs, stumps, brush, vegetation, rubbish and other perishable or objectionable materials

1. All stumps and roots within the limits of earthwork including the building areas shall be removed in their entirety.

B. Disposal: All material obtained from clearing and grubbing shall become the property of the Contractor and, unless otherwise specified, shall be disposed of off-site in an approved manner, subject to local codes.

3.4 REMOVAL OF STRUCTURES, UTILITIES AND OBSTRUCTIONS

A. General Requirements: The Contractor shall remove and dispose of those existing structures, utilities and obstructions which interfere with the proposed construction as shown on the Drawings. This shall include, but not necessarily be limited to, buildings and building foundations, fences, guide rails, walls, poles, pole bases, catch basins, inlets, manholes, vaults, tanks, conduit, pipes and appurtenances, floor slabs, pavements, sidewalks, curbs, signs and sign supporting structures.

1. The Contractor shall remove only those items and structures that he has been authorized to remove, either by specific directions given on the Drawings.

2. The Contractor shall be held responsible for any claim arising from his removal of any existing item or structure without the required authorization specified herein.

B. Discontinuance of Utilities: Before any structure or building with utilities thereon is disposed of, the utilities shall be disconnected and removed. The Contractor shall perform the work of discontinuing the utilities in accordance with the requirements and directions of the Authorities having jurisdiction over the utilities involved.

C. Backfilling Existing Foundation Areas: The Contractor shall exercise extreme care in the backfilling of existing building foundation areas, using only clean earth fill.

D. Portions of Pavements, Curbs, etc., To Remain: In removing portions of pavements, curbs, sidewalks, driveways and similar items where the balance of such items is to remain, removal

shall be to an existing joint.

E. Existing Services to be Maintained: In removing storm drain structures or sanitary sewer structures, all existing live storm drains or sanitary sewers connected to the structures shall be rebuilt and properly reconnected, and service shall be maintained during such construction operations.

F. Disposal of Material: All waste material obtained from the removal of structures and obstructions, including, but not limited to, concrete matted together by reinforcing, pipe, plaster, wood, paper, asphalt shingles, tanks, metal and miscellaneous debris, shall be properly disposed of off-site.

END OF SECTION 020370

SECTION 020380 – EXCAVATION AND EMBANKMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes excavation and embankment. The Contractor shall provide all labor, plant, material and equipment necessary and required to perform and complete all the excavation and embankment in accordance with the Contract Documents.

B. Work shall include, but not be limited to:

1. Construction of sediment/detention basin.
2. Stripping and stockpiling of topsoil and respreading stockpiled topsoil on grass and landscape areas after establishment of subgrade.
3. Excavation and/or filling, compaction and grading to subgrade surface elevations of developed areas on the site including subgrade surface elevations of the proposed building.
4. Disposal of unsuitable and/or surplus excavated material.
5. Formation and compaction of fill sections, embankments and subgrades, using suitable on-site excavated material and/or off-site borrow material as required.
6. Grading and regrading, including proof-rolling of subgrade surfaces.
7. Sheeting, shoring and bracing as necessary and required.
8. Dewatering of excavations as necessary and required.

1.2 WORK SPECIFIED UNDER OTHER ARTICLES

A. The following related work is specified under other Articles:

1. Temporary Soil Erosion, Sediment and Dust Control.
2. Site Preparation.
3. Trench Excavation and Backfill.
4. Landscape Work.

1.3 TOPOGRAPHICAL INFORMATION

A. Topographic information as shown on the Drawings was taken from a completed topographical survey. It shall be the obligation of the Bidder to satisfy himself by personal examination of the site that the existing topography shown is accurate. No claim for extra compensation for inaccuracies of existing topography will be allowed after Bids are submitted.

1.4 SUBSURFACE INFORMATION

A. Borings and/or Test Pits by Bidder: may be granted upon request to make borings or dig test pits for the purpose of verifying conditions at the site. The locations and size of such exploratory

holes will be subject to approval by the SUCF. The cost of such explorations shall be borne by the Bidder.

B. Examination of Site and Interpretation of Data: Bidders shall examine the site as well as all available information and then decide for themselves the character of materials to be encountered. The Bid should include the influence of such features, and it shall be deemed to include all consideration of the risks involved.

C. Groundwater Information: Attention is also directed to the fact that groundwater may rise during wet weather or fall during dry weather. The Bidder is hereby advised that varying groundwater levels are to be expected and that this may affect construction operations including earthwork.

D. Subsurface Information Not Guaranteed: Neither the Engineer-of-Record nor the SUCF guarantees that materials disclosed by the available information will actually be encountered. The data is supplied only for general information and is not guaranteed.

E. Bidder to Accept Actual Site Conditions: Submission of a Proposal binds the party thereto to accept the actual site conditions and to provide a completed condition at no additional cost to the SUCF except as specifically provided herein.

1.5. OWNER'S RESPONSIBILITY

A. The SUCF will provide a survey of the property and a Layout Plan.

B. The SUCF reserves the right to change final grades.

1.6. CONTRACTOR'S RESPONSIBILITY

A. The Contractor shall provide adequate personnel and equipment to complete the Work as specified herein and within the agreed upon Project Construction Schedule. The Contractor shall employ a qualified English -speaking supervisor who shall provide adequate and efficient coordination of the Work. The supervisor shall be present on the site on a continuous full-time basis and shall have the authority to act on behalf of the Contractor.

B. The Contractor shall provide adequate survey control to locate building lines, parking areas, driveways, top of slopes, toe of slopes, etc. within the horizontal dimensions shown on the Contract Drawings. He shall also provide adequate vertical control to establish site grades as shown on the Contract Drawings, within the tolerances as specified hereinafter.

C. Prior to the beginning of any site grading, the Contractor shall make sufficient checks on the topographic conditions to satisfy himself that the existing elevations are as shown by the topographic survey and on the Contract Drawings.

D. The Contractor is responsible for reporting any conditions encountered during construction which materially differ from those shown on the Drawings or indicated in the Specifications. These conditions shall be reported prior to continuing the related construction work.

E. The Contractor shall review all Drawings, Specifications and all other information included in

Contract Documents and shall determine the quantities of the work to be completed and be responsible for the assumptions made in determining the cost of the Work.

F. The Contractor shall coordinate and complete his work in such a manner as to interfere as little as possible with all other contractors and/or subcontractors working on the site.

1.7 EXISTING UTILITIES

A. The Contractor shall locate existing underground utilities in the area of the Work before starting earthwork operations. Where utilities are to remain in place he shall provide adequate means of protection during earthwork operations. The Contractor shall notify all utility owners and all Authorities having jurisdiction seventy-two (72) hours prior to the start of his operation.

B. The Contractor shall immediately make notice of uncharted, or incorrectly charted, piping or other utilities be encountered during excavation and consult with the utility owner(s) for directions; cooperate with the owner(s) in keeping their respective services and facilities in operation; and repair any damaged utilities to the satisfaction of the utility owner(s). The Contractor shall not interrupt existing utilities serving facilities occupied and used by the SUCF or others, except when permitted in writing and only after acceptable temporary utility services have been provided.

C. The Contractor shall demolish and completely remove from the site underground utilities indicated to be removed on the Drawings and coordinate with local utility companies for shut-off of services if lines are active.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 CONSTRUCTION DETAILS, GENERAL

A. The Contractor shall remove all soil, rock and other material, and utilize or dispose of these materials as shown on the Drawings and as specified herein.

B. The Contractor shall be responsible, at all times, for carrying out all excavation and embankment operations in a safe and prudent manner so that all persons and property will be protected from hazard. The Contractor shall comply with all applicable safety and protection laws, rules and regulations of all Federal, State, County and Local Authorities having jurisdiction.

C. The Contractor shall prepare and submit for approval his construction schedule for stripping, excavation, embankment and fill operations. This shall include the sequence of the Work and provide for the construction of permanent erosion control work at the earliest possible time.

3.2 DRAINAGE DURING CONSTRUCTION

A. During grading operations, pits, cuts, excavation areas and/or embankments and subgrades shall be shaped, sloped and maintained to facilitate drainage of surface water. Existing drainage routes shall not be choked or obstructed until new ones are available. Temporary culverts, pumps or other equipment shall be used to facilitate drainage of fills during construction.

B. Where steep slopes or abrupt grade changes occur, temporary diversion berms or dikes shall be installed at the top of the slope to direct the flow of water to control point(s) to be transported down slope by slope drain(s). Water shall not be allowed to flow uncontrolled down the slopes. Slope drain(s) shall be constructed with an apron at the top to direct the water and rubble stone at the bottom to prevent scouring of the soil.

3.3 EXCAVATION

A. General Requirements: The Contractor shall be responsible for all excavation of whatever material encountered, and there will be no extra compensation for any excavation, regardless of the character of the subsoil. All excavation under this Contract shall be considered as "Unclassified Excavation" as hereinafter described.

B. Stripping: The Contractor shall strip the area to be excavated of all undesirable material, and he shall dispose of the stripped material off-site.

C. Excavation in "Cut" Areas: After approval of the stripping operation in a "cut" area, excavation shall be made of the existing material to the lines and grades shown on the Contract Drawings. Material encountered during excavation which is not suitable for the proposed construction shall be excavated to the depths specified by in the Contract Drawings. Material suitable for use in fills or backfills, and in quantities sufficient for those purposes shall be stockpiled at on-site locations.

D. Classification: All material excavated shall be classified as "Unclassified Excavation", and this material shall be further classified as "Suitable Material" or "Unsuitable Material" as follows:

1. Unclassified Excavation: Unclassified excavation shall be defined as removal of all material of any nature whatsoever, including topsoil, pavements, rock and earth. No additions or deductions shall be made based on type of soil or rock, or type of fill encountered, or on the amount or elevation of such rock, soil or fill.

2. Suitable Material: Suitable material shall be defined as material whose composition is satisfactory for use in embankment construction. In general, any mineral (inorganic) soil, including their mixtures with boulders or broken rock, and similar materials of natural or man-made origin, shall be considered as suitable materials.

3. Unsuitable Material: Unsuitable material shall be defined as any material containing vegetation or organic matter, such as muck, peat, organic silt, topsoil or sod, that is not satisfactory for use in embankment construction or for support of permanent structures. Certain man-made deposits such as landfill may also be determined to be unsuitable material.

E. Stockpiling and Use of Suitable Material: The Contractor shall be responsible for the proper scheduling of the Work and stockpiling suitable excavated material as necessary and required

for use in the embankment and/or subgrade fill areas. Material which is stockpiled shall be properly protected by the Contractor so that its use as fill for embankment and/or subgrade will not be impaired. The Contractor shall place a silt fence or other acceptable erosion control device around stockpiles.

F. Disposal of Surplus Material: The Contractor shall be responsible for the off-site disposal of any surplus excavated material. Prior to commencement of excavation, the quantity of surplus material, if any, that he estimates is to be disposed of off-site.

1. In the event that the Contractor disposes of too much excavated material, he shall replace this material as necessary and required, at his own cost and expense. Material to be replaced shall meet the requirements for fill material as specified herein.

G. Deficiency of Suitable Excavated Material: Should there be a deficiency of suitable material obtained from excavation of the site, such additional fill material which is necessary and required shall be furnished from an off-site source. In the event that such deficiency of suitable material is the result of the Contractor's failure to properly schedule the Work, stockpile the proper amount of suitable excavated material, properly protect stockpiled material, or if the Contractor in any way, causes suitable material to become unsuitable for use as fill material because of his operations, such deficiency shall be corrected by the Contractor at his own expense at no additional cost.

H. Slopes: Slopes shall not be steeper than 2 horizontal to 1 vertical and as shown on the Drawings in both cut and fill, and storm water shall not be drained over the slopes.

I. Moisture Content of Excavated Soil: When the soil being excavated is such that an increase in moisture content will have a detrimental effect on its use as fill material, the soil shall be stockpiled, graded, and protected in a manner which will minimize the infiltration of rain water or surface runoff water.

J. Drainage: Soil excavation areas are to be kept sloped to drain. They are to be sealed by rolling each night.

3.5 EMBANKMENT

A. General Requirements: Suitable material removed from the excavation, shall be used in the formation of fill sections, embankments, subgrade, etc.

B. Borrow Material: The Contractor shall supply any required borrow material from off-site source(s), under the Contract Sum. Requirements for this off-site fill material shall be as specified hereinafter.

1. Fill supplied by the Contractor from an off-site source shall be common fill, free of organic or other deleterious material and capable of supporting construction traffic and being compacted to the densities hereinafter specified. New fill material shall be a clean, free draining, sand and gravel containing less than 20% silt.

C. Compaction of Embankment Foundation: Prior to placing fills, the Contractor shall compact to a

depth of one (1) foot, the exposed embankment foundation to the densities hereinafter specified, by proof-rolling with a large self-propelled roller .. The cost of all such work shall be included in the Contract Sum.

D. Placing of Fill: Fill shall be placed and compacted to the required elevations (adjusted to subgrade) indicated on the Drawings.

1. When fill is to be placed in existing paved areas, the Contractor shall scarify, break and remove the pavement prior to placing the fill.
2. When fill is to be placed on existing slopes steeper than 4 horizontal to 1 vertical the existing slope shall be benched in accordance with the details shown on the Drawings. In all slope areas fill material shall be bladed into the adjacent existing material for a horizontal distance of at least five (5) feet.
3. Embankments shall be pitched to provide drainage at the close of each day's operations. In no case shall the slope of fill construction exceed a ratio of 2 horizontal to 1 vertical and as shown on the Drawings.

E. Compaction of Fill: Prior to commencing fill operations, the Contractor shall do the following:.

1. Prior to compaction, each layer shall be leveled off by use of blade graders or bulldozers with adequate power for the work involved. The entire area of each layer shall be compacted by making no less than four (4) passes over the area with a large self-propelled roller or other mechanical means. Compaction shall be continued until each layer is thoroughly consolidated to the required degree of compaction for its full width.

F. Frost: No fill shall be placed when the fill material, the embankment foundation or the previous lift on which fill is to be placed is frozen. In the event that any fill which has already been placed or the embankment foundation shall become frozen before the next lift is placed, it shall be scarified and recompacted or removed.

G. Moisture: If, fill material becomes too wet for the required compaction, prior to commencing or continuing compaction operations, the fill shall be dried. If the fill material becomes too dry for the required compaction, the fill shall be moistened prior to commencing or continuing compaction operations.

H. Protection of Fill: Protection of all compacted lifts shall be the responsibility of the Contractor. Damage to any compacted lift, including those lifts previously, occurring at any time during the course of construction, caused by equipment, from moisture entering the embankment, or from any other cause whatsoever, shall be fully repaired by the Contractor prior to placement of overlaying materials, at his own expense.

1. In the event of heavy rains, the Contractor shall suspend fill operations immediately and shall take all necessary steps to keep the site as well drained as possible. Fill operations shall not be resumed until the moisture content of the fill is such as to permit compliance with these Specifications.
2. All corrective work or operations necessary to maintain proper moisture control of the fill material shall be at the expense of the Contractor.

3.7 GRADING TOLERANCE

A. All subgrade surfaces prior to fine grading for pavement and building construction shall be graded to within ± one tenth (0.1) foot of the required subgrade surface elevations. This ± one tenth (0.1) foot tolerance shall balance, so that the surface can later be fine graded without adding or removing material.

B. Uniform levels and slopes shall be provided between elevations shown on the Drawings and between proposed elevations and existing elevations shown to be maintained. Abrupt changes in slopes shall be rounded.

3.8 PROOF-ROLLING OF SUBGRADE SURFACES

A. General Requirements: All subgrade surfaces shall be proof-rolled by means of a large self-propelled roller . making at least four (4) passes covering the entire graded area to locate and permit timely correction of subgrade deficiencies which are likely to adversely affect the performance of the pavement structure.

B. Cut Sections: In cut sections, proof-rolling of the subgrade surface shall be done to determine the location and extent of areas below the subgrade surface that may require subgrade undercutting. Should any portion of the cut subgrade surface fail to provide satisfactory support for the proof-rolling operation.

1. Payment for such corrective work shall be as specified elsewhere in this Article under "Subgrade Undercutting."

C. Embankment Sections: In embankment sections, proof-rolling of the subgrade surface shall be done to determine the uniformity of the compaction below the subgrade surface and to locate subgrade deficiencies requiring corrective work. Any deficiencies discovered during proof-rolling operations shall be corrected. After all corrective work has been completed, the surface shall be proof-rolled again. Corrective work shall not be considered complete and acceptable until the subgrade shows satisfactory and uniform response to the proof-rolling operations. All work necessary and required to correct subgrade deficiencies in embankment sections shall be at the Contractor's expense.

3.9 DUST CONTROL

A. General Requirement: Throughout all operations covered by this Article, the Contractor shall provide all necessary measures to control dust through the use of water, calcium chloride or other material.

B. Spreading Calcium Chloride: Calcium Chloride shall be spread in pellet or flake form by approved devices so that uniform distribution is attained over the entire area being treated.

C. Applying Water: Watering equipment shall consist of pipelines, tanks, tank trucks or other approved devices capable of applying a uniform spread of water over the surface. A suitable device for regulating the flow and positive shutoff of water shall be provided for positive control by the operator.

D, Authority of SUCF's Site Representative: The SUCF's Site Representative will advise the Contractor of any unsatisfactory procedures for dust control. If the unsatisfactory procedures are not corrected promptly, the SUCF's Site Representative may suspend the performance of any or all construction until the condition has been corrected, and such suspension of construction shall not be used as the basis of any claim by the Contractor for additional compensation or an extension of the Contract time.

3.10 SHEETING, SHORING AND BRACING

A. General Requirements: At his own expense, the Contractor shall furnish, install and maintain such sheeting, shoring, bracing and coffer damming, etc., as may be needed to support the sides and roofs of excavations and to prevent any earth or rock movements which might in any way diminish or affect the necessary width of the excavation, endanger the safety of persons, injure or delay the Work, or jeopardize the safety of adjacent pavements, property, buildings or other structures. The work of sheeting, shoring and bracing shall, at all times, be in accordance with the requirements of all Authorities having jurisdiction, including OSHA.

B. Contractor to be Solely Responsible: The Contractor shall be entirely and solely responsible for the adequacy and sufficiency of all supports and of all sheeting, bracing, shoring, coffer damming, etc. The Contractor shall assume entire and sole liability for damages on account of injury to persons, adjacent pavements, and public and private property including, but not limited to, the work under construction, buildings and other structures, which injury shall result directly or indirectly from the Contractor's failure to install or to leave in place adequate and sufficient supports, sheeting, bracing, shoring, coffer damming, etc.

3.11 DEWATERING

A. Dewatering of Excavations: Dewatering of excavations may be required to prevent disturbance to the footing and slab subgrades. Whether dewatering is required will depend on such factors as the time of the year, the amount of precipitation, the actual nature of the soil, and the natural groundwater level at each excavation. If water is encountered, the Contractor may attempt to control groundwater levels with open pumping using a system of ditches and sumps. However, control of groundwater shall be accomplished in a manner that will preserve the strength of the foundation soils, will not cause instability of the excavation or slopes, will not cause erosion problems, and will not result in damage to existing structures. Where necessary to accomplish these purposes, the water level shall be lowered in advance of excavation by a dewatering system.

1. Whatever method of groundwater control is used (e.g., ditches, sumps, well points, etc.), the groundwater level shall be maintained at least two (2) feet below the bottom of the excavation.
2. Open pumping with ditches and sumps, if it results in boils, loss of fines, softening of the ground, or instability of slopes, will not be permitted. If wells or well points are to be used, they shall be installed with suitable screens and filters so that continuous pumping of fines does not occur.

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3.12 COORDINATION OF OPERATIONS

A. The Contractor is advised that during the course of work under this Article work may be progressing on other phases of the Project, including work on separate contracts with the SUCF for building construction, utilities, etc. It shall be the responsibility of the Contractor to coordinate his operations and those of any of his subcontractors with the operations of these other contractors.

END OF SECTION 020380

SECTION 020390 – TRENCH EXCAVATION AND BACKFILL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes trench excavation and backfill

B. The Contractor shall provide all labor, plant, material and equipment necessary and required to properly excavate and backfill all utility systems and subsurface structures to be installed under this Contract. Work shall include, but not be limited to:

1. All necessary excavation, including disposal of unsuitable and/or surplus excavated material.
2. All necessary bedding, backfill and compaction, including furnishing approved bedding material and additional suitable backfill material as required.
3. Sheeting, shoring and bracing as necessary and required.
4. Dewatering of trenches as necessary and required.

C. The following related work is specified under other Articles:

1. Temporary Soil Erosion, Sediment and Dust Control.
2. Site Preparation.
3. Excavation and Embankment.
4. Storm Drainage.
5. Miscellaneous Construction.

1.2 EXISTING UTILITIES AND SUBSURFACE STRUCTURES

A. The Contractor is referred to project conditions and procedures regarding existing utilities and structures given under separate Articles of these Specifications and on the Drawings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 CONSTRUCTION DETAILS, GENERAL

A. Trench excavation shall be carried out by the Contractor to conform with the line and grade of the various utilities and the bottom of the foundations and/or footings for subsurface structures

as shown on the Drawings and as specified herein.

B. All excavations shall be kept free from water, snow and ice during construction.

C. The Contractor shall be responsible, at all times, for conducting all operations in a safe and prudent manner so that all workmen and the public will be protected from hazard. The Contractor shall observe all applicable Local, County, State and Federal requirements, and he shall obtain all necessary permits and pay all fees, deposits and charges required for acquiring said permits.

D. In fill areas, all embankments shall be constructed to a minimum of 2 feet above the outside top (at the bell) of the pipes prior to beginning any trench excavation.

3.2 TRENCH EXCAVATION

A. Unclassified Excavation: All excavation required for the completion of the work shall be considered as unclassified. Unclassified excavation shall be defined as removal of all material of any nature whatsoever, including topsoil, pavements, rock and earth. No additions or deductions shall be made based on type of soil or rock, or type of fill encountered, or on the amount or elevation of such rock, soil or fill.

B. General Requirements: The Contractor shall be responsible for the excavation of all materials encountered, and with the exception of "Additional Trench Excavation" as hereinafter described, there will be no extra compensation for any excavation, regardless of the character or type of soils or materials encountered.

C. Method of Trenching: Trench excavation shall be done with excavating machinery, except in such places where work performed in this manner will injure trees, buildings or existing utilities or structures, or where the use of machinery is specifically forbidden, in which case hand methods shall be employed.

D. Preparation of Bottom of Trench: The trench bottoms shall be prepared to conform to the details on the Drawings and as specified herein. Special precautions shall be exercised to insure that pipe and conduit, when installed, will not rest on rock, masonry or any other materials which would present a non-uniform foundation. For bell and spigot pipe, bell holes shall be provided at each pipe joint to prevent bearing on the bell of the pipe. Where two or more pipes or conduits are to be laid in the same trench, the Contractor shall excavate the trench so that all pipe and conduit are laid on undisturbed or approved properly compacted material.

E. Unsuitable Material at Bottom of Trench: When the material at the bottom of a trench is unsuitable, it shall be removed, and backfilled with suitable and properly compacted granular material obtained from the Project excavation, or from borrow excavation if it is not available within the Project. Compaction of this replacement material shall be not less than 98% Maximum Modified Density (ASTM Designation D-1557).

1. Payment for removal of the unsuitable material and replacement with suitable

compacted granular material, as directed, shall be considered as included under the Contract Sum.

F. Excavation Below Required Grade: Excavation below the grade of pipe, conduit or subsurface structures shown on the Drawings, necessitated by changes in grades, will be paid for under "Additional Trench Excavation", as hereinafter defined.

1. Excavation carried below the required level without the prior authorization, shall be backfilled by the Contractor at his expense with suitable compacted granular material. Compaction of backfill material shall be as specified above.

G. Excavation in Paved Areas: When excavations are to be made in paved surfaces, the paved surfaces shall be line cut on each side of the trench and ahead of the excavation by means of saw cutting or other approved tools to provide a clean, uniform edge, with minimum disturbance of the remaining pavement. The pavement so removed shall not be used for trench backfill, but shall be disposed of.

H. Unsuitable Excavated Material: Unsuitable excavated material shall be disposed of.

I. Surplus Excavated Material: Excavated material which is not required for trench backfill shall be disposed. In general, suitable surplus excavated material may be used as fill material.

3.3 VACANT

3.4 ADDITIONAL TRENCH EXCAVATION

A. Authorized Changes and/or Alterations: as a result of unforeseen conditions arising during the progress of the Work, order the grade of any pipe or structure changed from that established on the Drawings, or may order the raising, lowering or alteration of any existing pipeline or structure.

B. Additional Payment to Contractor: Should such changes or alterations result in an addition to the quantity of trench excavation, this additional excavation shall be considered as Extra Work and payment for same shall be made to the Contractor on the basis of the unit price in the Proposal for "Additional Earth Excavation in Trench" or "Additional Rock Excavation in Trench," whichever may be appropriate.

C. Credit to Owner: Should such changes or alterations result in a reduction in the quantity of excavation, then the unit price in the Proposal for "Additional Earth Excavation in Trench" or "Additional Rock Excavation in Trench," whichever may be appropriate, shall be applied to the quantity of reduced excavation to determine a credit to the SUCF for the reduction in the amount of excavation occasioned by such change.

D. Method of Measurement: The quantity of "Additional Earth Excavation in Trench" or "Additional Rock Excavation in Trench" measured for payment to the Contractor or reduction of trench excavation measured for credit shall be determined by plotting the profile of the bottom of the trench for pipe and/or structures, as indicated on the Drawings and the profile of the bottom of the trench for pipe and/or structures(s) in their final location and computing the difference in trench volume. The volume of additional trench excavation (in the

case of additional payment to the Contractor) or reduced trench excavation (in the case of credit to the College) shall be measured using a constant width of trench equal to the outside pipe diameter plus two (2) feet for pipe and one (1) foot outside of walls for structure(s). The depth of the excavation shall be measured from subgrade elevation in cut areas and from two (2) feet above the outside top of pipe in embankment areas.

3.5 BEDDING

A. General Requirements: Bedding in trench for pipe and conduit shall be as shown in detail on the Drawings and as specified herein. Requirements for bedding shall be as follows:

1. Standard Bedding: Shall consist of bedding the pipe or conduit on a properly prepared foundation of natural undisturbed earth for trench excavation in cut areas and properly compacted earth for trench excavation in fill areas as shown in detail on the Drawings. The bed shall have recesses to receive the bell of bell and spigot pipe.
2. Select Bedding: Shall consist of a bed of properly compacted granular bedding material (sand or crushed stone as specified) having a compacted thickness of at least six (6) inches below the bottom of the pipe or conduit and extending around the pipe or conduit for at least 30% of its diameter or rise. The layer of bedding material shall be shaped to fit the pipe or conduit for at least 15% of the outside diameter or rise of the pipe or conduit and shall have recesses shaped to receive the bell of bell and spigot pipe. Sand bedding shall be clean, well-graded sand consisting of hard, durable particles free from lumps of clay, loam and all other deleterious substances. Crushed stone bedding shall be well-graded crushed stone conforming to ASTM Designation C-33, size No. 67. When Select Bedding is specified, the Contractor shall furnish, place and compact all necessary and required select bedding material at no additional cost to the College.

    a. Select Bedding shall be used for all polyethylene and polyvinyl chloride pipe and conduit installation. Except for polyethylene and polyvinyl chloride pipe and conduit installation, and unless otherwise shown on the details of the Drawings, Standard Bedding may be used.

3.6 BACKFILLING

A. General Requirements: Upon approval of bedding and pipe installation, and after proper inspection and tests have been made, excavations shall be backfilled by the Contractor with the type of backfill material specified. Excavations shall be backfilled and compacted as specified herein and in accordance with the details of the Drawings using the following materials:

1. Standard Backfill: Shall consist of approved on-site material (earth).

2. Should there be a deficiency of proper on-site material for backfilling, the Contractor shall furnish, place and compact additional proper backfill material, at no additional cost.

3. Select Backfill: Shall consist of granular material (sand or crushed stone as specified) as

approved. Sand shall consist of clean, well graded, hard, durable particles, free of lumps of clay, loam and all other deleterious substances. Crushed stone shall consist of well graded crushed stone conforming to ASTM Designation C-33, Size No. 67. When Select Backfill is specified, the Contractor shall furnish, place and compact all necessary and required select backfill material at no additional cost to the College.

a. All backfill material shall be free from large stones, clods, topsoil, sod, frozen earth, wood or any other objectionable material.
b. For all polyethylene and polyvinyl chloride pipe and conduit installation, Select Backfill shall be used to backfill the trench until there is a minimum of six (6) inches of cover over the pipe or conduit. Above this level, Standard Backfill may be used.
c. Except for polyethylene and polyvinyl chloride pipe and conduit installation and unless otherwise shown on the details of the Drawings. Standard Backfill may be used.
d. Where use of Standard Backfill is permitted, the material used to backfill the trench up to a level two (2) feet above the top of the pipe shall be approved clean earth and shall contain no stone or broken rock greater than one (1) inch in size. Above a level two (2) feet higher than the top of pipe, the material used for backfill shall be approved material, which may contain not more than fifteen (15) percent stone or broken rock with no stone or piece thereof exceeding four (4) inches in size. Such stone or broken rock shall be thoroughly mixed with the earth so that there will be no voids in the backfill.

B. Placement and Compaction: Backfill for pipe and conduit shall be placed evenly and carefully around and over the pipe or conduit in six (6) inch maximum layers. Each layer shall be thoroughly and carefully compacted until twelve (12) inches of cover exists over the pipe or conduit. The remainder of the backfill may then be placed and compacted in maximum twelve (12) inch layers. Each layer shall be compacted by approved mechanical tamping machines.

1. Backfill shall be compacted to not less than 92% Maximum Modified Density in accordance with ASTM Designation D-1557 in the manner herein described.
2. Backfill shall proceed up to the lines and grades as shown on the Drawings. Backfill areas which settle shall be corrected by the Contractor at the Contractor's expense.

C. Removal of Sheeting: During backfill operations, no sheeting which is to be removed shall, at any time, extend into the backfill which is being compacted. The sheeting shall be withdrawn so as to always be above the backfill.

D. Protection: The Contractor shall be responsible for safeguarding all pipes, conduits and structures being backfilled, and any damage occurring to same either during the backfilling operations or after the backfilling operations have been completed shall be corrected by the Contractor at the Contractor's expense.

3.7 SHEETING, SHORING AND BRACING

A. General Requirements: At his own expense, the Contractor shall furnish, install and maintain such sheeting, shoring, bracing and coffer damming, etc., as may be needed to support the sides

and roofs of excavations and to prevent any earth or rock movements which might in any way diminish or affect the necessary width of the excavation, endanger the safety of persons, injure or delay the Work, or jeopardize the safety of adjacent pavements, property, buildings or other structures. The work of sheeting, shoring and bracing shall, at all times, be in accordance with the requirements of all Authorities having jurisdiction.

B. Contractor to be Solely Responsible: The Contractor shall be entirely and solely responsible for the adequacy and sufficiency of all supports and of all sheeting, bracing, shoring, coffer damming, etc. The Contractor shall assume entire and sole liability for damages on account of injury to persons, adjacent pavements, and public and private property including, but not limited to, the work under construction, buildings and other structures, which injury shall result directly or indirectly from the Contractor's failure to install or to leave in place adequate and sufficient supports, sheeting, bracing, shoring, coffer damming, etc.

3.8 DISPOSAL OF WATER

A. General Requirements: The Contractor shall remove, by pumping or other means approved by Geotchnical Engineer, any surface or groundwater which may accumulate in excavations, and he shall at all times keep excavations dry while work is being done in them.

1. The water table shall be lowered below the bottom of the proposed excavation prior to making excavations extending below the water table. Any soil disturbed and which becomes unstable for support of pipes, foundations, structures, etc., shall be replaced by the Contractor as directed by the SUCF's Site Representative and/or Geotechnical Engineer with an approved aggregate at the Contractor's expense

B. Grading of Adjacent Areas: Areas adjacent to any excavation shall be graded so as to prevent water from running into the excavations.

C. Method of Disposal: The water from the excavations shall be disposed of in such a manner as will not cause injury or damage to the public health, public or private property, nearby streams, ditches, channels, rivers, water impoundment areas, the work contemplated or in progress, surfaces of the streets, nor cause any interference with the use of the same. The disposal of this water shall be done in a manner satisfactory to the Geotechnical Engineer and Authorities having jurisdiction.

D. Erosion Control: The Contractor is advised that all operations must conform to the Article of these Specifications entitled "Temporary Soil Erosion, Sediment and Dust Control".

E. Newly laid masonry and concrete shall be protected from damage resulting from dewatering operations by the use of canvas or other methods as may be approved. No water shall be allowed to run through newly laid masonry, concrete or pipes except with the approval of the Engineer of Record.

END OF SECTION 020390

SECTION 020400 – STORM DRAINAGE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes gravity-flow, nonpressure storm drainage outside the building.

B. The Contractor shall provide all labor, plant, material and equipment necessary and required to install all of the storm drainage facilities in accordance with the Contract Documents. Work shall include, but not be limited to:

1. Installation of drainage system consisting of manholes, drain inlets, pipe, outlet control structure, and all necessary and required accessory items and operations, including connections to existing drainage facilities.
2. Alteration, reconstruction and/or conversion of existing structures, including resetting existing and/or new castings to grade as required.
3. Alteration, reconstruction and/or relocation of existing drainage lines as required.
4. Installation of building leader drains consisting of all pipe, fittings and required accessory items and operations, including connections to the proposed and/or existing drainage system.
5. Installation of subsurface stormwater management facility consisting of prefabricated units, pipe, fittings, structures and all necessary and required items and operations.
6. Installation of drainage facilities within the Public R.O.W. and/or easements.

C. The following related work is specified under other Articles:

1. Temporary Soil Erosion, Sediment and Dust Control.
2. Trench Excavation and Backfill.

1.2 OTHER REQUIREMENTS

A. In addition to the requirements specified herein, the Contractor shall comply with the requirements as specified on the Drawings.

1.3 TRENCH EXCAVATION AND BACKFILL

A. The provisions of the Article of these Specifications entitled "Trench Excavation and Backfill" shall govern all work under this Article.

1.4 STORAGE AND HANDLING

A. Storage: Storage of storm drain pipe and appurtenances on the job shall be in accordance with the manufacturers' recommendations.

B. Handling: All storm drain pipe and appurtenances shall be protected against impact, shock and free fall, and only equipment of sufficient capacity and proper design shall be used in handling the pipe and appurtenances.

1.5 DAMAGE

A. General - Pipe and/or appurtenances which are defective from any cause, including damage caused by handling, determined as unrepairable, shall be unacceptable for installation and shall be replaced by the Contractor at no cost.

1. Pipe and/or appurtenances that are damaged or disturbed through any cause prior to acceptance of the Work, shall be repaired, realigned or replaced by the Contractor at their expense.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The materials to be used in the construction shall be those indicated on the Drawings and specified herein. The Contractor shall supply, prior to installation, certificates of compliance for the materials used. The Contractor shall also submit shop drawings and catalog cuts of all storm drain items and appurtenances (pipe, fittings, joints, castings, steps, precast concrete structures, etc.) for review prior to ordering.

2.2 STRUCTURES

A. General: Where material requirements specified hereinafter conflicts with the requirements of Authorities having jurisdiction, the requirements of the Authority having jurisdiction shall govern.

B. Brick: Conforming to the "Specifications for Sewer and Manhole Brick (made from Clay or Shale)", AASHTO Designation M-91, Grade MS.

C. Concrete Block: Solid block and conforming to the "Specifications for Concrete Masonry Units for Construction of Catch Basins and Manholes," ASTM Designation C-139.

D. Precast Concrete Structures: Prior to fabrication, the Contractor shall submit four (4) sets of plans of the proposed precast concrete for review along with design criteria and certification by the manufacturer that the structure will support the design load. All precast concrete structures shall be designed for an H-20 design load. The minimum compressive strength of the concrete used for all precast concrete structures shall be 4,000 psi.

1. Precast concrete manhole sections shall conform to ASTM Designation C-478. Precast concrete square or rectangular box structures shall conform to ASTM Designation C-913.
2. Joints in the structures shall be tongue and groove joints, formed in such a manner so that a watertight rubber seal can be applied. Joints for precast concrete manhole sections shall conform to ASTM Designation C-443 or ASTM designation C-990. Joints for precast concrete box sections shall conform to ASTM Designation C-990. Provisions shall be made for installation of approved watertight connections at pipe entrances to the precast concrete structure.
3. Where steps are required in structures, steps shall be installed during the casting of the structures, aligned as specified herein. Steps shall be spaced 12 inches vertically on-

centers, and shall be arranged so that the lowest rung is no more than 15 inches above the bench in structures with an invert and above the bottom of the structures with no invert. The top rung is to be installed no more than 24 inches below the top of the casting. Steps shall be arranged out of the alignment of the pipes and/or floor channel and shall be centered in the opening of the grate or cover.

4. No precast concrete structure shall be fabricated or delivered to the job site until it has received final review status. All structures shall have an identifying number and manufacturer's name on each section.
5. When precast concrete structures are to be used, the Contractor shall bear all responsibility for the proper locations and sizes of all openings to receive the pipe. Final review of shop drawings shall not relieve the Contractor of his responsibility in this matter. Should field revisions to the structure be necessary due to improper location of openings or unforeseen field conditions such as line and/or grade changes, deletion of structures, relocation of structures, or addition or deletion of lines to be connected into the structures, the Contractor will be required to make all necessary and required revisions at no additional cost.

E. Manhole Frames and Covers shall be as specified on the Drawings. Castings shall be gray cast iron, American made by a nationally recognized casting manufacturer conforming to the requirements of AASHTO Designation M-105, Class 30 and shall be true to pattern in form and dimensions as specified, free from pouring faults, sponginess, cracks, blowholes and other defects that affect their strength and other characteristics for the intended use. All surfaces shall have a workmanlike finish.

1. All component parts shall fit together in a satisfactory manner and frames and covers shall be of a design that will prevent rocking or rattling under traffic. Frames and covers that are warped or rocking, shall be rejected and shall be removed and replaced.
2. Unless otherwise specified, the word "DRAIN" shall be integrally cast on the cover in raised letters and centered. Letter size shall be two (2) inches.
3. If directed, and at no additional cost, castings shall be coated with an asphalt paint which shall result in a smooth coating and not be tacky or brittle.

F. Drain Inlet and Catch Basin Frames and Grates shall be as specified on the Drawings and in accordance with the following requirements and shall be American made by a nationally recognized casting manufacturer:

1. Cast Iron: Gray cast iron castings conforming to the requirements of AASHTO Designation M-105, Class 30. All requirements of workmanship and material as specified for manhole castings shall apply herein. If directed, and at no additional cost, castings shall be coated with an asphalt paint which shall result in a smooth coating and not be tacky or brittle.
2. Fabricated Steel: Meetings the requirements of AASHTO Designation M-183. Unless otherwise specified, all frames and grates shall be galvanized in accordance with AASHTO Designation M-111.
3. All component parts of the frames and grates shall fit together in a satisfactory manner and frames and covers shall be of a non-rocking design so as to prevent rocking or rattling under traffic. Frames and grates that are warped or rocking, shall be rejected and shall be removed and replaced by at no additional cost.

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G. Mortar shall be composed of one (1) part Portland cement and two (2) parts sand by volume. Material requirements shall be as follows:

1. Portland Cement: Conforming to the requirements of AASHTO Designation M-85.
2. Mortar Sand: Conforming to the requirements of AASHTO Designation M-45, except that aggregate shall be no coarser than #8 sieve size.
3. Water: Clean and shall not contain any oil, acid, alkali, salts, vegetable matter, organic matter or other deleterious substances. When possible, water shall be from a municipal system.
4. Hand mixing of mortar will be permitted only when the amount of mortar to be used makes machine mixing undesirable. When hand mixing is used, the ingredients must first be thoroughly mixed dry in a tight box. The proper quantity of clean water shall then be gradually added, and the materials shall be hoed or worked until a uniform mixture is secured. Admixtures may be added only with the prior written consent.
5. No greater quantity of mortar is to be prepared than is required for immediate use, and it shall be worked over constantly with hoe or shovel until used. No mortar shall be retempered, and none shall be used more than one and one-half (1-1/2) hours after mixing. All mortar which remains upon stopping work shall be discarded.

H. Steps: Steps in drainage structures shall be as specified herein and on the details of the Drawings and shall meet the requirements for steps and ladders as specified under ASTM Designation C-478.

1. Malleable or Ductile Cast Iron: Designed for a minimum design live load of a single concentration of 300 pounds. Material shall be of Iron, Class 25A, in accordance with ASTM Designation A-48 or Malleable Iron, Grade 35018 in accordance with ASTM Designation A-47.
2. Plastic Coated Steel: No. 4 deformed reinforcement bar meeting the requirements of ASTM Designation A-615, Grade 60 which shall be coated with polypropylene plastic meeting the requirements of ASTM Designation D-2146 for Type II, Grade 49108.
3. All steps shall be true to pattern, form dimensions, and free from defects which would affect their strength. Steps having defects filled with putty or cement of any kind shall be rejected.

PART 3 - EXECUTION

3.1 CONSTRUCTION DETAILS, GENERAL

A. The Contractor shall install all drainage structures and pipe in the locations shown on the Drawings. Pipe shall be of the type and sizes specified and shall be laid accurately to line and grade. Structures shall be accurately located and properly oriented.

B. The installation of all drainage structures and pipe shall conform to the requirements of all Authorities having jurisdiction.

C. The requirements of the Health Department and any other Authority having jurisdiction shall govern the horizontal and vertical separation of storm drains from water lines.

3.2 PIPE INSTALLATION

A. Laying Pipe: Each length of pipe shall be laid with firm, full and even bearing throughout its entire length, in a trench prepared and maintained in accordance with the details as shown on the Drawings and the Article of these Specifications entitled "Trench Excavation and Backfill". Pipe shall be laid upgrade unless otherwise directed.

1. Every length of pipe shall be inspected and cleaned of all dirt and debris before being laid. Prior to the placing of a length of pipe, the end of the previously laid length shall be carefully and thoroughly wiped smooth and cleaned to obtain an even and close-fitting joint.
2. No length of pipe shall be laid until the preceding lengths of pipe have been thoroughly embedded in place, so as to prevent movement or disturbance of the pipe.

B. Full Lengths of Pipe: Only full lengths of pipe are to be used in the installation except that partial lengths of pipe may be used at the entrance to structures where necessary to obtain a proper connection to the structure.

C. Pipe Entrances to Structures: All pipe entering structures (e.g. manholes, drain inlets, catch basins, etc.) shall be cut flush with the inside face of the structure, and the cut ends of the pipe and surface of the structure shall be properly rounded and finished so that there will be no protrusion, ragged edges, or imperfections that will impede the flow of water or affect the hydraulic characteristics of the installation.

1. Only full sections of pipe shall be used where entering a structure which will be exposed to view, such as headwalls, end sections, etc.

D. Bedding and Backfilling: The type of materials to be used as bedding and backfill and the method of placement shall conform to the requirements of the Article of these Specifications entitled "Trench Excavation and Backfill" and as shown on the details of the Drawings.

E. Protection During Construction: The Contractor shall protect the installation at all times during construction. Movement of construction equipment, vehicles and loads over and adjacent to any pipe shall be done at the Contractor's risk.

1. At all times when pipe laying is not in progress, all open ends of all pipes shall be closed by approved temporary watertight plugs. If water is in the trench when work is resumed, the plugs shall not be removed until the trench has been pumped dry and all danger of water entering the pipe has been eliminated.
2. The Contractor shall furnish a sufficient pumping plant and shall provide and maintain at his own expense satisfactory drainage wherever needed in the trench and other excavations during the progress of the Work and at its completion for final inspection. No pipe or other structure shall be laid in water, and water shall not be allowed to flow or rise under any concrete or masonry. All water pumped or bailed from the trench or other excavation shall be conveyed in proper manner to a suitable point of discharge. The flow in all sewers, drains and watercourses encountered on the Work and in gutters along the sides of or across the Work shall be entirely provided for, both temporarily and permanently, as required, by the Contractor at his expense. All offensive water shall be removed from the Work at once.

F. Tolerance: Pipe shall be laid accurately to the line and grade shown on the Drawings. Allowable tolerances shall be one-half (1/2) inch on grade and one-half (1/2) inch on line in any section of pipe between structures. No adverse grades shall be allowed. Deviations from these tolerances shall be a basis for rejection of the line of pipe. Any line which has been rejected shall be rebuilt to the correct line and grade by the Contractor at his own expense.

3.2 PIPE JOINTS

A. Pipe shall be joined as specified herein:

1. Jointing Corrugated Polyethylene Drain Pipe – Polyethylene couplers and/or bell and spigot joints that provide watertight connections shall be used. The joints shall be installed according to the manufacturer's specifications and as approved.

3.3 STRUCTURES

A. General Requirements: All drainage structures shall be built in accordance with the details and at the locations shown on the Drawings and as specified herein. Where a specific material of construction is indicated, no substitution will be allowed unless authorized. Where more than one type of material of construction is indicated, the Contractor shall have the option of constructing the structure of any one of the materials specified. Precast concrete structures shall require shop drawing submission for review.

1. Cast-in-place concrete and/or masonry shall not be laid when the temperature is below 40 degrees F., or when indications are for lower temperatures within 24 hours, unless protection of concrete and masonry is approved. In this event, the Contractor shall take measures to prevent concrete and masonry from being exposed to freezing temperatures for a period of not less than five (5) days after installation. Approval of the method of protection shall not relieve the Contractor of his responsibility to protect the concrete and masonry from freezing, and any damage to the structure because of freezing shall be corrected by the Contractor at his own expense.
2. All cast-in-place concrete and masonry shall be installed by personnel experienced and skilled in this work, and any person not deemed shall be removed and replaced by a person so qualified.
3. Drainage structures are to be constructed as soon as the pipe laying reaches the location of the structures.
4. In constructing drainage structures, the Contractor shall accurately locate each structure and set accurate templates to conform to the required line and grade. Any structure which is mislocated or oriented improperly shall be removed and rebuilt in its proper location, alignment and orientation at the Contractor's expense.
5. The Contractor shall use extreme care in the handling of precast concrete structures. Any damage occurring to the precast concrete structures due to carelessness in handling or due to any of the Contractor's operations shall be repaired or replaced by the Contractor at his own expense to the complete.
6. Unless otherwise specified, all structures shall be constructed on concrete foundations. All foundations shall rest on firm soil of uniform bearing. If the soil beneath the foundation is unsuitable, the Contractor shall remove this unsuitable material and replace it with an approved properly compacted granular material conforming to the requirements of the Article of these Specifications entitled "Trench Excavation and Backfill" to the

bottom elevation of the structure.

B. Cast-in-Place Concrete Structures: Cast-in-place concrete structures shall be constructed of Class "A" concrete with reinforcing as shown in detail on the Drawings and as specified herein.

1. Material and construction requirements shall be as specified under the Article of these Specifications entitled "Site Concrete."

C. Masonry Structures: The first course of masonry shall be embedded in the concrete foundation immediately after the foundation has been poured. Brick masonry units shall be thoroughly wetted before laying.

1. All masonry shall be laid in a full bed of mortar, and all vertical and horizontal joints shall be filled solid with mortar. Vertical joints on each succeeding course shall be staggered. Joints shall be not less than three-eighths (3/8) inch or more than one-half (1/2) inch wide. Joints on the inside of the structure shall be neatly struck and pointed.
2. Corner units for rectangular concrete block structures must be "L" shaped with an inside return side equal to half the length of the normal unit. Units shall be designed so that only full length units are required to lay any one course. Cut block will not be allowed.

3. Unless otherwise specified, the interior surface of the walls of masonry structures shall be painted upon completion with three (3) coats of neat cement grout without sand, applied with an interval of at least 24 hours between applications. The exterior surface of the walls of masonry structures shall be plastered with a one-half (1/2) inch coat of 1:2 cement mortar.

D. Precast Concrete Structures: Precast concrete structures shall be installed only after shop drawings have received final review. All precast concrete structures shall be designed and fabricated for an H-20 design load.

1. The base of the precast concrete structures shall be set on a foundation pad of crushed stone eight (8) inches in compacted thickness. Foundations of all precast concrete structures shall rest on firm soil of uniform bearing. If soil beneath the foundation is unsuitable, the Contractor shall remove the unsuitable material and replace it with an approved properly compacted granular backfill material conforming to the requirements of the Article of these Specifications entitled "Trench Excavation and Backfill" to the bottom elevation of the crushed stone pad.
2. After pipes have been installed, all openings shall be properly sealed with non-shrinking cement mortar grout as directed. Grout around pipes which protrude through the walls of the structure and on all joints shall contain "Antihydro", or other approved additive, to insure watertightness. Cement grout shall contain one (1) part cement to two (2) parts sand by volume and additive in accordance with manufacturer's recommendations. Mortar shall be applied to the bottom one-third (1/3) of the opening before the pipe is inserted.
3. The precast concrete top section shall be set sufficiently below finished grade to permit adjustment of the casting using brick or precast concrete adjustment rings as risers to adjust the grade of the casting (minimum 4" – maximum 12" adjustment). Frames shall be set on a grout pad as specified hereinabove.

E. Shallow Circular Structures: For shallow circular structures, the top conical section shall be replaced by a flat reinforced concrete slab with the proper size opening to accommodate the specified casting. The minimum thickness of the reinforced concrete slab shall be six (6) inches and shall be designed for an H-20 design load. In general, the flat slab top shall be used for circular structures whose depth from pipe invert to finished grade is five (5) feet or less.

F. Inverts: Smooth invert channels shall be constructed in all manholes and in all drain inlets and catch basins which do not have sumps, to insure a smooth flow of water through the structure.

1. Inverts channels for precast concrete structures shall be constructed of concrete; invert channels for masonry structures may be constructed of concrete or brick.
2. If brick inverts are specified or permitted, special care shall be taken in laying brick. Joints shall not exceed three-sixteenth (3/16) inch in thickness and each brick shall be carefully laid in full cement mortar joints on bottom, sides and ends in one operation. No grouting or working in of mortar after laying of the brick shall be permitted.
3. Extreme care shall be taken by the Contractor to construct invert channels to the shape, elevations and dimensions shown, in the contract drawings.

G. Frames and Covers/Grates: Frames and covers/grates for drain structures shall be of the types and sizes indicated on the Drawings. Frames shall be well bedded in mortar and shall be set accurately to the correct alignment and grade. In areas to be paved, frames shall be set by using four (4) points of reference, set 90 degrees apart, to insure accurate setting to proposed pavement grade.

1. Where drain inlets and/or catch basins are to be placed on curb lines or at edge of pavements, sufficient length of proposed curb or edge of pavement adjacent to the structure shall be established prior to construction of the drain inlet and/or catch basin to insure that the structure is correctly located and oriented.

H. Steps: Steps shall be installed in all manholes. Steps shall also be installed in all drain inlets and catch basins greater than four (4) feet in depth unless otherwise specified.

1. Steps shall be set securely in place during the construction of the wall for masonry structures and during fabrication of the wall section for precast concrete structures. Spacing of steps shall be as shown in detail on the Drawings.

3. RELOCATION AND/OR ABANDONMENT OF EXISTING FACILITIES

A. The Contractor shall not abandon, disconnect, obstruct or in any other way interfere with the operation of an existing storm drain facility until such time as adequate permanent or temporary substitute facilities have been constructed and placed in operation.

3.7 LEADER DRAINS

A. General Requirements: The Contractor shall make all required connections of the building leader drains into the on-site drainage system where and as shown on the Drawings. Work shall include making the leader drain connections into the on-site drainage system, furnishing and installing all leader drain pipe from the on-site drainage system to points located five (5) feet outside of the building lines and properly sealing the ends with watertight plugs, except that, if the building

plumbing contractor has installed his portion of the leader drains, work under this Contract shall also include final connections of the leader drains five (5) feet outside the building lines to the leader drains installed by the building plumbing contractor. The connections shall be made with proper fittings and/or adapters compatible with the building leader drains providing watertight connections and shall be done at no additional cost.

B. Coordination with Building Plumbing Contractor: The Contractor will be required to coordinate his work with the work of the building plumbing contractor to determine the exact locations and elevations of the points of entry into the building.

C. Connection into On-site Drainage System: Leader drain connections to the on-site drainage system shall be made at structures or into the pipe where and as shown on the Drawings. Pipe connections shall be made with proper size and type tee and/or wye fittings supplied by the pipe manufacturer.

3.8 SUBSURFACE STORM WATER MANAGEMENT FACILITY (PIPE)

A. General Requirements: The Contractor shall furnish and install a complete subsurface corrugated steel pipe storm water management facility with access manholes, complete with all necessary and required accessory items and operations to make a complete and functional system ready for use.

B. Assembly: The corrugated steel pipe shall have welded seams and shall be fabricated and assembled to the section specified and in accordance with the manufacturer's requirements. The installation shall be watertight. Joints shall be made with corrugated bands or hugger bands and rubber o-ring gaskets. Steel bulkheads shall be welded to the pipe at both ends to form watertight connections, and they shall be provided with fabricated steel pipe stubs to accommodate pipe connections from drainage structures as may be required. The bulkheads shall be designed and certified for an H-20 loading.

C. Shop Drawings and Installation Drawings: Prior to ordering, the Contractor shall submit shop drawings, catalog cuts and installation drawings indicating materials, sizes and dimensions of the units, for review. Any work done by the Contractor, prior to final review of the shop drawings, catalog cuts and installation drawings is done at the Contractor's risk.

D. Layout: Prior to installation, the Contractor shall lay out the limits of the subsurface storm water management system and the location of the component parts. Once the location has been approved, the Contractor shall install the system in accordance with the details of the Drawings.

E. Foundation and Bedding: Proper foundation and bedding preparation is critical to the installation. The foundation and bedding shall be constructed to avoid distortions that may create undesirable stresses in the structure and shall be free of any material that may cause unequal settlement. The foundation shall be properly consolidated by the use of compaction equipment prior to placing the bedding material. Bedding shall be stable, well graded granular material conforming to the requirements of ASTM designation C-33. The structure shall be placed on the bedding material to ensure
proper seating of the corrugations and satisfactory compaction beneath the haunches of the pipe.

F. Backfill: A granular type of material (select backfill) shall be used around and over the structure.

This select backfill material shall be stable well-graded granular material conforming to one of the following classifications of soil from AASHTO Specification M-145, as modified Table 2 for A-1, A-2-4, or A-2-5. Approved backfill material shall be placed in horizontal uniform layers, not exceeding six (6) inch thickness, before compaction, and shall be brought up uniformly on both sides of the structure. Each lift is to be compacted to a minimum of 95% Maximum Modified Density in accordance with ASTM Designation D-1557. Special attention shall be given to placing and compacting material under the haunches of the pipe.

G. Pipe Connections: The Contractor shall provide for pipe connections into the pipe system for leads to drain inlets, manholes, etc. Provisions for connections into the pipe shall be made at the factory and shall be of the sizes required. Field cutting of the steel bulkheads to provide connections will not be allowed.

H. Protection: During backfill, only small tracked vehicles shall be allowed near the structure as fill progresses above the crown of the pipe and to the finished grade. Compaction equipment or methods that cause excessive deflection, distortion or damage shall not be used. Minimum cover shall be maintained above the top of the pipe and this minimum cover may need to be increased to handle temporary construction loads. The Contractor shall protect the installation at all times, and any damage caused by his neglect or due to his operations shall be corrected by and at the Contractor's expense.

3.9 UNDERDRAINS

A. General Requirements: The Contractor shall install all underdrains where and as shown on the Drawings.

B. Pipe Installation: A minimum four (4) inch layer of approved underdrain filter material shall be placed and compacted in the bottom of the trench as a bedding for the pipe. Underdrain pipe of the type and size specified shall be embedded firmly in this bedding material to the line and grade shown on the Drawings.

1. Unless otherwise specified, perforated pipe shall be laid with the perforations down and the pipe sections shall be jointed securely with the appropriate fittings or bands. Upgrade ends of pipe underdrains shall be closed with suitable plugs.

C. Backfilling: After the pipe installation has been inspected and approved, underdrain filter material shall be hand-shoveled around and over the pipe to such a depth that, after compaction, it extends a minimum of four (4) inches above the underdrain pipe. The surface of the underdrain filter material shall then be compacted with a vibrating pad compactor, and the remainder of the filter material shall be placed in lifts not more than six (6) inches in thickness with each lift thoroughly compacted with a mechanical vibrating pad compactor. The height of filter material over all pipe shall be as indicated on the Drawings.

D. Geotextile Fabric: Geotextile fabric shall be placed where and as shown in detail on the Drawings. Ends and sides of fabric shall be lapped a minimum of twelve (12) inches.

E. Pipe Connections and Changes in Alignment: Pipe to pipe connections and changes in pipe alignment shall be made only with prefabricated fittings to be supplied by the manufacturer of the pipe (e.g. tees, wye branches, etc.).

3.10 CLEANING AND REPAIR

A. The Contractor shall clean the entire drainage system of all debris and obstructions. This shall include, but not be limited to, removal of all formwork from structures, concrete and mortar droppings, construction debris and dirt. The system shall be thoroughly flushed clean and the Contractor shall furnish all necessary hose, pumps, pipe and other equipment that may be required for this purpose. No debris shall be flushed into existing storm drains or streams. All debris shall be removed from the system.

B. After the system has been cleaned, the Contractor shall thoroughly inspect the system and all repairs shown to be necessary shall be promptly made by the Contractor.

C. All work of cleaning and repair as specified herein shall be done at the Contractor's expense.

3.11 FINAL TESTS AND INSPECTION

A. Upon completion of the Work and before final acceptance, the entire drainage system shall be subjected to an inspection. The Work shall not be considered as complete until all requirements for line, grade, cleanliness, and workmanship have been met.

END OF SECTION 020400

SECTION 022200 - DEMOLITION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. SECTION INCLUDES

1. Construction Fencing
2. Removal of electrical lighting fixtures.
3. Removal of drainage piping and structures.
4. Removal of pavements, concrete, walls and structures as shown on the drawings.

1.2 RELATED SECTIONS

1. 01732 Selective Demolition
2. 02741 Hot Mix Asphalt
3. 02300 Earthwork
4. 02751 Cement Concrete Pavement
5. 02920 Lawns and Grasses
6. 02930 Exterior Plants
7. 03300 Cast-in-Place Concrete
8. Divisions 2 and 16 Sections for installing underground drainage and electrical piping, conduit and structures.

1.3 SUBMITTALS

A. Quality Control Submittals:

1. Permits: Submit one copy of each permit.
2. Demolition Plan: For information only, submit one copy of the demolition plan required under Quality Assurance Article.

1.4 QUALITY ASSURANCE

A. Permits: Before the Work of this Section is started, obtain all permits required by Federal, State, and local jurisdictions for all phases and operations of the Work.

B. Demolition Plan: Before the Work of this Section is started, prepare a detailed demolition plan. The demolition plan shall include, but not be limited to, detailed outline of intended demolition and disposal procedures. The demolition plan will not relieve the Contractor of complete responsibility for the successful performance of the Work in accordance with all applicable Federal, State, and local codes and restrictions.

1.5 PROJECT CONDITIONS

A. Existing Paint: Assume existing painted surfaces to contain lead based paints. Take precautions as required to prevent spread of lead containing particles and dust.

B. Recycle demolition debris to the extent possible at the contractor's discretion. Unused materials shall be removed from the campus.

C Burning is prohibited.

D. The use of explosives is prohibited.

E. Demolition related equipment shall access the site on roadways as permitted by the campus. Equipment accessing the project area adjacent to tunnel structure is limited by loading criteria of the structure. Large vehicles are not permitted on roadways adjacent to the plaza.

G. See section 02300, Earthwork.

H. Protect utilities during the Work of this Section.

I. Verify the location and status of all utilities within the contract area.

J. Utilities affected by the work must be disconnected by licensed contractors.

K. Steam, sewer, water, gas, electric, and telephone utilities will be disconnected by licensed contractors.

L. Do not interrupt utility services to buildings which are to remain.

M. Employ watchpersons to patrol the site 24 hours per day, 7 days a week, from the time demolition is started until rough grading is completed.

PART 2 PRODUCTS

2.1 MATERIALS

A. Construction Chain-Link Fencing: Minimum 2-inch, galvanized steel, chain-link fabric fencing; minimum 8 feet high with galvanized steel pipe posts as shown on the contract drawings.

B. Selected Fill: As specified in Section 02300.

PART 3 EXECUTION

3.1 PREPARATION

A. Provide temporary 8 foot high chain link fence, including all required gates, around the work area as shown plans prior to start of the Work of this Section. Locate temporary fence where directed. Remove temporary fence in its entirety, including all anchorage materials, after completion of backfill operations.

B. Provide 'windscreening' on fencing where indicated on plans.

C. Remove items scheduled to be salvaged for the Facility, and place in designated storage area.

3.2 DEMOLITION

A. Perform demolition in a systematic manner.

C. Wet down materials during demolition to prevent spread of dust and dirt. Sprinkle debris, and use temporary enclosures as necessary to limit dust to lowest practicable level. Do not use water to extent causing flooding, contaminated runoff, or icing.

D. Remove walks, roads, pavements, curbs, slabs on grade, and fences within CLL, unless shown or directed otherwise.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. Arrange to shut off indicated utilities with utility companies.
3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

    a. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.

3.4 DISPOSAL

A. Remove demolition debris and excess fill from State property as soon as practicable.

B. Transport demolition debris and excess fill to designated disposal area as soon as practicable. Grade disposal areas to adjacent contours and slope to drain.

C. Do not store, sell, or burn materials on State property.

3.5 BACKFILLING AND GRADING

A. Place fill in voids within the CLL.

B. Final 12 inches of backfill below topsoil elevations shall be selected fill.

C. Rough grade surface to adjacent contours and slope to drain.

END OF SECTION 022200

SECTION 022300 - -SITE CLEARING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. SECTION INCLUDES

1. Remove surface debris.
2. Clear site of plant life and grass where indicated on plans.
3. Remove trees and shrubs.
4. Remove root system of trees and shrubs, except where indicated on plans.
5. Stripping and stockpiling topsoil.

1.2 RELATED SECTIONS

A. Related Sections include the following:

1.	02300	Earthwork
2.	02751	Cement Concrete Pavement
3.	02910	Planting Soils
4.	03300	Cast-in-Place Concrete

1.3 REGULATORY REQUIREMENTS

A. Conform to applicable code for disposal of debris.

B. Coordinate clearing work with utility companies.

PART 2 PRODUCTS

2.1. MATERIALS

A. No herbicides shall be used.

PART 3 EXECUTION

3.1. PREPARATION

A. Verify that existing plant life and features designed to remain are tagged or identified.

3.2. PROTECTION

A. Protect utilities that remain from damage.

B. Protect trees, plant growth, and features designed to remain as final landscaping.

C. Protect benchmarks and existing structures from damage or displacement.

3.3. CLEARING

A. Clear areas required for access to site and execution of work.

B. Remove paving, curbs, etc.

C. Remove trees and shrubs and stumps within marked areas.

D. Clear undergrowth and deadwood without disturbing subsoil.

E. No herbicides shall be used.

3.4 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

C. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects more than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

D. Stockpile topsoil away from edge of excavations without intermixing with subsoil at a location as determined by SUNY. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

E. Limit height of topsoil stockpiles to 72 inches.
F. Do not stockpile topsoil within protection zones.
G. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.4. REMOVAL

A. Remove debris, rock, and extracted plant life from site.

END OF SECTION 022300

SECTION 022300 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns and grasses and exterior plants.
2. Excavating and backfilling adjacent to existing buildings and structures.
3. Subbase course for concrete walks and pavements.
4. Structural Soil.
5. Geotextiles.
6. Excavating and backfilling for drainage & electrical piping and structures.

B. Related Sections include the following:

1. 01732 Selective Demolition
2. 02751 Cement Concrete Pavement
3. 02722 Precast Concrete Catch Basins and Manholes
4. 02920 Lawns and Grasses
5. 02930 Exterior Plants
6. 03300 Cast-in-Place Concrete
7. Divisions 2 and 16 Sections for installing underground drainage and electrical piping, conduit and structures.

1.3 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed over the excavated subgrade in a trench before laying pipe.

C. Structural Soil: Soil imported from off-site for use as fill or backfill to support concrete slab on grade.

D. Excavation: Removal of existing topsoil in planting beds above subgrade elevations.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Bulk Excavation: Excavation more than 20 feet in width and more than 900 feet in length.
3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

E. Planting soil: Soil materials used to raise existing grades.

F. Structures: Buildings, footings, foundations, retaining walls, slabs, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

G. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

H. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Each type of plastic warning tape.
2. Geotextile.

B. Sample of geotextile.

C. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:

1. Classification according to ASTM D 2487 of each soil material proposed for fill and backfill.
2. Laboratory compaction curve according to ASTM D 698 and ASTM D 1557 for each soil material proposed for fill and backfill.

1.5 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by SUNY unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify Architect not less than two days in advance of proposed utility interruptions.

2. Contact utility-locator service for area where Project is located before excavating.

B. Site Protection: Protect areas outside the construction area and protect drains from soil and sediment runoff or discharge by placing hay bales and fabric to control sediment runoff.

PART 2 - PRODUCTS

2.1 SOIL AND GRAVEL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

D. Aggregate Base: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; NYS DOT Type 2, with the following gradation:

sieve designation	% passing by weight
2 inch	100
¼ inch	25-60
No. 40	5-40
No. 200	0-10

E. Drainage Course: Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

F. Sand: ASTM C 33; fine aggregate, natural, or manufactured sand.

G. Structural Soil: Structural Soil Mix shall conform with “CU Soil”, as patented by Cornell University, Patent #5,849,069. The product shall be obtained from a licensed producer and proof of such licensing shall be submitted to the Commissioner prior to delivery to the site. Licensed providers include:

1. East Coast Mine, Quogue, NY
2. Tully Environmental Co. d/b/a Evergreen Recycling of Corona, NY
3. Approved equal

Structural Soil shall have the following composition:

1. A moisture content of 10% (AASHTO T-99 optimum moisture)between 5.5 and 6.0
2. Gradation:
   a. The structural soil material shall consist of three components mixed in the following proportions by weight:

      1) Crushed Stone: 100 parts
      2) Clay Loam: 20 parts
      3) Hydrogel: 0.03 parts

   b. Crushed Stone: granite or sandstone (no limestone shall be used) narrowly graded from 3/4-inch to 1-1/2 inches, highly angular with no fines and in the following proportions:

Sieve Size	Percent Passing by Weight
1-1/2"	90 to 100%
1"	20 to 55%
¾"	10%

   c. Submit representative samples of crushed stone to a Testing Laboratory approved by the Commissioner. Following testing, Contractor shall submit a sealed 3 pound bag of crushed stone with a test report from the Testing Laboratory to the Commissioner for approval. The testing report shall include the following tests and recommendations:

      1) Particle size
      2) Losses and rodded unit weight
      3) Bulk specific gravity
      4) Soundness
      5) Absorbance
      6) Stone dimensions as per ASTM D4791 for crushed stone

2.2 GEOTEXTILES

A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1.	Survivability:	Class 2	AASHTO M 288
2.	Grab Tensile Strength: 157 lbf		ASTM D 4632
3.	Sewn Seam Strength:	142 lbf	ASTM D 4632
4.	Tear Strength:	56 lbf	ASTM D 4533
5.	Puncture Strength:	56 lbf	ASTM D 4833
6.	Apparent Opening Size:	No. 60 sieve, maximum	ASTM D 4751
7.	Permittivity:	0.5 per second, minimum	ASTM D 4491
8.	UV Stability:	50 percent after 500 hours' exposure	ASTM D 4355

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Section 02230 – Site Clearing.

3.2 EXCAVATION, GENERAL

A. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as soil.

1. Soil excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.

3.3 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

B. Excavated areas must be maintained in a dewatered condition. Water from excavated areas must be filtered to remove sediment prior to being discharged into the storm drainage system.

3.4 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. For pipes and conduit less than 6 inches in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.

D. Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe elevation to allow for base course. Hand excavate for bell of pipe.

1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for base course.

3.5 SUBGRADE INSPECTION

A. Notify Architect when excavations have reached required subgrade.

3.6 STORAGE OF SOIL MATERIALS

A. Stockpile borrowed soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from the work area as directed by the engineer.

3.7 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Surveying locations of underground utilities for Record Documents.
2. Testing and inspecting underground utilities.
3. Removing concrete formwork.
4. Removing trash and debris.
5. Removing temporary shoring and bracing, and sheeting.
6. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.8 SOIL FILL

A. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.

B. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.9 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.10 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:

1. Under structures, slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.

3.11 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades as shown on the drawings. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch .
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

3.12 BASE COURSES

A. Place and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and base course under pavements and walks as follows:

1. Install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place base course 6 inches or less in compacted thickness in a single layer.
3. Place base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
4. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557D.

3.13 DRAINAGE COURSE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Install subdrainage geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place drainage course 6 inches or less in compacted thickness in a single layer.
3. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
4. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 1557D.

3.14 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved Areas: At subgrade and at each compacted fill and backfill layer, at least 1 test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than 3 tests.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.15 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.16 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Transport surplus satisfactory soil to designated storage areas on SUNY property. Stockpile or spread soil as directed by Architect.

1. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off SUNY property.

END OF SECTION 022300

SECTION 023740 - EROSION CONTROL DEVICES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Minimize the potential short-term adverse environmental impacts associated with construction activity in environmentally sensitive areas.

B. Assure the quantity and quality of stormwater runoff is not substantially altered due to construction activities.

C. Protection of Critical Environmental Areas.

D. Stabilize areas and protect offsite areas and inlet structures by the installation and maintenance of stabilization and erosion and sediment control measures.

E. Provide and maintain stabilized construction entrance.

F. Provide dust control.

G. Dewatering operation procedure.

1.2 RELATED SECTIONS

A. Section 02300 Earthwork.

B. Section 02910 Planting Soils

C. Section 02920 Lawns and Grasses

D. Section 02930 Exterior Plants

1.3 REFERENCED STANDARDS

A. NYSDEC: Reducing the Impacts of Stormwater Runoff for New Development, latest edition and as amended.

B. NYSDEC Environmental Conservation Law, Article 17. Titles 7, 8 and Article 70.

C. 6 NYCRR Parts 611 – 613 and all additions.

D. OSHA 40 CFR Part 258 and all additions.

E. New York State: Standards and Specifications for Erosion and Sediment Control, latest edition.

1.4 DEFINITIONS

A. Critical Environmental Areas: Those areas, conditions, or features which, when disturbed by construction activities, create an adverse environmental impact. These areas include, but are not necessarily limited to, densely wooded areas, swales, wetland areas, streams, brooks (Blind Brook) and steep slopes.

1.5 SUBMITTALS

A. Contingency Action Plan for prompt remedial action in the event spillage of petroleum products or other pollutants should occur. Contingency Action Plan shall be submitted to the Engineer for acceptance prior to the start of construction.

B. Operator / Owner shall file a Notice of Intent (NOI) with NYSDEC prior to commencing construction activities and a Notice of Termination (NOT) with NYSDEC following construction. Copies of the NOI and NOT shall be provided to the Contractor and Engineer.

C. Shop Drawings and Catalog Cuts for all items specified.

1.6 ACCIDENT PREVENTION MEASURES

A. All preventative measures shall be taken to avoid spillage of pollutants and the release of sediment.

B. Every precaution shall be taken to prevent the possibility of accidentally starting fires. Construction programs should include fire prevention planning, training of personnel in fire fighting, and a fire prevention inspection program.

C. Pollutant control, erosion control devices, and sedimentation control devices shall be inspected on a daily basis and necessary repairs made accordingly.

D. Additional controls shall be implemented if field conditions warrant, and/or as directed.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Silt fence sedimentation barrier.

B. Silt sock inlet protection.

C. Haybale protection.

D. Silt sack inlet protection.

E. Filter fabric inlet protection.

F. Hardwood staking material.

G. Dewatering bag.

H. Stone material

PART 3 - EXECUTION

3.1 PERFORMANCE

A. All construction details outlined herein and shown on the Drawings shall be implemented to insure minimum damage to the environment during construction and for the long term.

B. All construction details shall meet environmental objectives and constraints specified herein, outlined in permits, or directed by the Owner to protect the natural resources within the Project Area.

C. The Contractor shall comply with all provisions of the “Stormwater Pollution Prevention Plan”, prepared by Abel Bainnson Butz, LLP (ABB).

D. Temporary, permanent, or unspecified alteration of the flow line of any stream or watercourse will be prohibited.

E. Vegetation adjacent to or outside of access roads or rights-of-way shall not be damaged.

F. Disposal of spoil material shall not be in any flood plain, wetland, stream, brook, or sensitive environmental area. The Contractor shall dispose of spoils within staging areas and provide sediment control barriers accordingly.

G. The Contractor shall be required to protect and preserve existing trees and shrubs in areas designated on the drawings by ABB and other Project Team Consultants drawings. Contractor shall replace any tree or shrubs damaged in kind to the satisfaction of the Owner.

H. Installation of erosion and sediment control products shall be installed as per manufacturer’s specifications.

I. Vegetation shall be established to control sedimentation and erosion on slopes, long term stockpile areas, or any other erosion sensitive area.

J. Contractor shall follow erosion and sediment control sequencing schedule and inspection schedule indicated on the SWPPP. Contractor shall prepare report following each inspection.

K. The Owner / Contractor shall maintain a record of all erosion and sediment control inspection reports at the site in a log book. The site log book shall be maintained on the site and be made available to the permitting Authority. The Owner / Contractor

shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis.

3.2 CLEARING

A. Tree trunks and roots, vegetation, and project debris shall not be buried on site.

B. Staging areas (for storage of materials and stockpiles) shall be located as shown on the plans. Where areas must be cleared for staging area temporary structures, provisions shall be made for regulating drainage and controlling erosion.

C. All abandoned or useless objects including equipment, supplies, personal property, rubbish, (including those present prior to construction activities) should be removed from the project work area and properly disposed of in accordance with local, state, and federal regulations.

3.3 EROSION AND SEDIMENTATION CONTROL

A. Prior to commencement of construction, the Operator's Engineer shall conduct an assessment of the site and certify that the appropriate erosion and sediment control structures as shown on the drawings have been adequately installed and implemented. The Contractor shall contact the Operator's Engineer once the erosion and sediment control structures have been installed.

B. The Owner/Operator shall have a qualified inspector, as described in the NYSDEC SPDES General Permit for Stormwater Discharge from Construction Permit No. GP-0-08-001, conduct a site inspection following the commencement of construction every 7 calendar days. The Contractor shall begin implementing corrective actions within one day of receipt of notification by the qualified inspector that deficiencies exist with the erosion and sedimentation control measures employed at the site.

C. The Contractor shall, at the direction of the Operator's Engineer, use necessary methods to minimize erosion within access roads, especially in areas that drain to stream or watercourse areas.

D. Cuts, fills, and other disturbed areas will be maintained to prevent erosion until adequate vegetative/impervious cover is established.

E. Silt fence and haybales, where identified on plans, shall be installed at down gradient locations to control sediment deposits off-site at critical environmental areas. The silt fence and haybales shall be staked (unless noted otherwise), anchored and set as per manufactures specifications. The silt fence haybales shall be inspected on a daily basis and after a rain fall event and repaired as necessary.

F. Haybale barriers shall be placed around any existing or newly installed trench drains or air vents that have the potential of accepting sediment. The haybales barriers shall be inspected on a daily basis and after a rainfall event. The haybales shall be staked using two hardwood stakes per haybale, unless specified otherwise. Once the

haybales have served their usefulness, haybales shall be removed and disposed of off-site.

G. Silt sock barriers shall be placed around any existing or newly installed trench drains, catch basins and/or inlets that have the potential of accepting sediment, where indicated on the plans. They shall be comprised of a tough heavyweight geotextile filter fabric sock filled with material such as gravel, sand, and or pea stone. The silt sock shall be either lapped or butted at the ends to create a continuous line of defense. The silt socks barriers shall be inspected on a daily basis and after a rainfall event. The silt socks shall be secured as per the manufacturer's recommendations, unless specified otherwise. Sediment shall be removed once it has accumulated to one half the original height of the barrier and taken off-site. Silt socks shall be replaced whenever it has deteriorated to such an extent that the effectiveness of the filter is reduced.

H. Silt sack inlet protection shall be placed within existing catch basins or inlet that have the potential of accepting sediment within access corridors. In order to install, the grate shall be removed and standing on its end. Move the lifting straps out of the way and place the grate into the silt sack unit so that the grate is below the top straps and above the lower straps. Holding the lifting devices, insert the grate into the inlet, being careful that the grate remains in place and does not damage the unit. The silt sack inlet protection shall be inspected on a daily basis and after a rainfall event. If the unit is more than a third full of accumulated sediment, the unit must be emptied. To empty the unit, using the lifting straps lift the unit out of the inlet and remove the grate. Transport the unit to an appropriate location for removal of contents. Holding the dumping straps on the outside at the bottom of the unit, turn the unit upside down, emptying the contents. Remove collected sediment off-site. Reinstall as stated herein.

I. Filter fabric, as specified on the plans, shall be placed beneath all area inlet grates; air vents; and trench drains prior to and/or during construction where indicated on the plans to prevent the collection of sediment and debris within the drainage lines. A three-inch overhang shall be provided around the perimeter for removal of the fabric, without it collapsing into the inlet. The dimensions of the fabric shall be as specified on the Drawings.

J. A stabilized construction entrance shall be installed and maintained for vehicular access on and off site at each staging area and within Contract Limit Line. The entrance shall be constructed of 2" stone, or approved equal, and shall have a minimum length of 50 feet. The condition of the entrance shall be inspected daily and repaired as necessary.

K. Dust control shall be controlled by the use of water, or calcium chloride application. Water application shall be applied at a rate where mud is not produced. The rate of application of the calcium chloride shall not exceed Federal, State and Local application rates or manufactures recommendations. Dust control shall be applied on adjacent public or private streets if deemed necessary by the Owner.

L. Paved areas within access corridors and pavers shall be swept on a regular basis as needed to minimize sediment and dust tracked from the Work area.

M. When all disturbed areas are stable, all temporary erosion and sediment control measures shall be removed per the approval of the Operator's Engineer and Owner/Operator.

END OF SECTION - 023740

SECTION 02 41 20

REMOVALS, CUTTING AND PATCHING

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 DESCRIPTION OF WORK

A. The extent of the work is indicated on the Drawings and includes selective removals, dismantling, salvage, legal disposition of demolished materials, and all cutting, fitting, and patching that may be required to complete the Work, or to make its several parts fit together properly.

1. Removals, cutting and patching shall be limited to the absolute minimum necessary to complete work, unless otherwise indicated on the drawings. The Contractor will be held responsible for the restoration, to the Architect's satisfaction, of any historic fabric that is removed or damaged unnecessarily.

1.3 RELATED SECTIONS

A. Construction waste management – Section 017419.

B. Asbestos Abatement - Section 028213

1.4 JOB CONDITIONS

A. The contractor shall not mar, damage, or endanger any portion of the Work or existing construction to be retained by the removals, cutting, patching, or altering of Work. Should damages occur to existing construction, finishes, etc. not indicated for removal, the Contractor shall restore such damages promptly to a condition satisfactory to the Architect at no additional cost to the Owner.

B. Protection from weather:

1. Provide adequate temporary waterproofing protection to prevent damage to existing materials uncovered by removals and/or to prevent water penetration into the interior during construction.

2. No part of the building shall be left open to the weather overnight or left open during any period of inclement weather.

C. If unforeseen obstructions or dubious conditions that may affect the installation or performance of the contract work are encountered communicate with the Architect before proceeding with the work.

D. Deteriorated materials shall be disposed of by the Contractor. Removal and disposal of any hazardous substances shall be performed in accordance with Section 028213.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 REMOVALS , SHORING AND BRACING

A. Execute removals carefully to minimize damage to existing historic fabric and danger to persons. Provide all temporary shoring and protection required to prevent settlement or other damage to existing construction which is to remain.

B. Provide temporary shoring to carry the load of structural members that are to be cut or replaced in a manner that will prevent any movement of the structure for the duration of the repair or replacement work. Remove shoring after repair/replacement has been reviewed by the Architect.

C. Historic items to be salvaged, relocated or reused, as indicated in the construction documents, shall be removed prior to any other removal work, whenever physically feasible.

D. Remove items indicated on the Drawings and in the Specifications as "to be removed" or to "replace" and where removal is necessary to permit Work under this Contract. Limit cutting to the smallest amount necessary for removal of deteriorated material and proper installation of the Work.

E. Roofing: Where indicated on the drawings, remove existing roof system and associated components in their entirety down to existing roof deck. Remove roofing system without damaging roof deck.

1. Install temporary roofing and flashing as necessary to maintain a watertight condition throughout the course of the work. Remove temporary work prior to installation of permanent roofing materials.

F. Where temporary bracing, shoring or scaffolding will be attached to masonry, anchors and bolts shall be installed only in the joints of the masonry; do not drill into masonry. Remove all temporary anchors and fasteners when scaffolding is dismantled. Fill holes in painted wood and touch up paint. Repoint holes in masonry joints.

G. Boards, including siding, trim and roof deck boards: Where indicated on the drawings and where required for installation of the contract work, remove boards and salvage sound boards for reinstallation unless scheduled for replacement. Remove full individual boards or sections of boards to the next existing joint, unless removing a shorter length will leave in place boards that are at least three feet in length. Deck and fascia boards shall be cut only over supporting structural members.

H. Clean areas adjacent to the Work of dirt, and debris due to removals. Return adjacent areas to the condition existing before start of removals.

3.2 CUTTING AND PATCHING

A. Remove, cut, or alter existing construction where indicated on the drawings and also as required to install the work and connect same to adjacent construction. Limit cutting to the smallest amount necessary for proper installation of the work.

B. In no case are existing structural members to be cut, unless specifically indicated, or with prior approval of the Architect.

C. Patching to match existing, or patching into existing material, means provide new material which matches the existing in dimensions, profile, finish appearance, and species or composition as applicable. Patching shall be level with adjacent existing surface and fit snugly without trim or filler.

D. Restore exposed finishes of patch areas and extend finish restoration into retained adjoining construction to visually integrate evidence of patching. Refinish to nearest joint or intersection where applicable.

1. Where patching occurs in a painted surface, apply primer and intermediate coats over patch and final paint coat over entire unbroken surface containing the patch.

2. Restore painted finishes on exterior wood items (including siding, trim, windows, doors, framing members) that are removed to install contract work and then reinstalled.

END OF SECTION

SECTION 026340 - DRAINAGE PIPE AND DRAINS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Provide cast iron pipe and fitting material for connection to existing cast iron storm water.

B. Remove debris and flush clean storm water piping as indicated on Contract Drawings.

C. Existing pipe size and material shall be verified in field during construction.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Earthwork: Section 02300.

B. Corrugated Polyethylene Storm Drainpipe and Fitting: Section 02635

C. Precast Concrete Catch Basins and Manholes: Section 02722

1.4 SUBMITTALS

A. Product Data: Manufacturer's specifications including dimensions and strength for each type of pipe.

B. Product Data: Catalog sheets and specifications indicating manufacturer name, type, applicable reference standard, schedule, or class for specified pipe and fittings.

PART 2 PRODUCTS

2.2 IRON PIPE AND FITTINGS

Extra Heavy Weight Cast Iron: ASTM A 74; coat pipe and fittings inside and outside with an asphaltic coating at least 1 mil in thickness.

2.3 CAST IRON CATCH BASINS (TYPE 3 ADA Accommodations)

A. Extra heavy duty catch basin with ADA type grating shall be similar to Model No. Z-676-Y as manufactured by Zurn Company. Unit shall be provided with caulk outlet and a sediment bucket.

PART 3 EXECUTION

3.1 INSPECTION

A. Flush clean existing storm water piping as shown on Contract Drawings and as directed by Field Engineer. Examine all pipe and fittings before installation. Remove defective pipe and fittings from the Site.
B. Do not backfill until inspected and approved.

3.2 INSTALLATION

A. Laying Pipe:
1. Lay pipe to indicated line and grade with a firm uniform bearing throughout its length.
2. Lay pipe with a uniform pitch between high and low points.
3. Position bells upstream.
4. Provide sufficient clearance at each bell or coupling to allow uniform bearing along the pipe barrel. Fill excell excavation with suitable material and tamp.

B. Joints:
1. Wipe inside of sockets and outside of pipe to be jointed, clean and dry.

C. Connections:
1. Make connection to existing sewers by springing two or more joints and inserting a "Y" fitting. Remake all damaged existing joints.
2. Make connections to existing manholes by cutting into the floor or bench of the manhole and forming a new channel.
3. If the pipe, manholes or other structures with which connection is to be made has not yet been installed, install the pipe and plug or cap the end in a satisfactory manner.

END OF SECTION 026340

SECTION 026350 - CORRUGATED POLYETHYLENE STORM DRAINPIPE AND FITTINGS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Corrugated polyethylene pipe shall be provided for storm water piping installation, unless specially noted on the Design Drawing.

B. Remove debris and flush clean existing storm water piping as indicated on the Contract Drawings.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Earthwork: Section 02300.

B. Cast-in-Place Concrete: Section 03300.

1.4 SUBMITTALS

A. Product Data: Manufacturer's specifications (AASHTO M-252), including dimensions, allowable height of cover information, and installation instructions.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Advanced Drainage Systems, Inc., 3300 Riverside Dr., Columbus, OH 43221; (614) 457-3051.

B. Hancor, Inc., 401 Olive St., Findlay, OH 45840; (800) 847-5880.

C. Industrial Threaded Products, Corp, 777 Mount Ave., Wyandanch, NY 11798, 631-665-9300

2.2 MATERIALS

A. Smooth interior watertight HDPE pipe similar to N-12 WT 1B pipe as manufactured by Advanced Drainage Systems.

1. Coefficient of Roughness (interior pipe surface): 0.020 maximum (Manning formula).
2. Classification: AASTON M252, Type S.
3. Design Strength (all sizes): 50 feet allowable height of cover.
4. Joint Couplings: Polyethylene Couplers; Bell spigot, or split collar through 24-inch diameter.
5. Material Properties: High density polyethylene meeting the requirements of ASTM D 3350, Cell Classification 424420C.
6. The design of watertight pipe shall meet or exceed ASTM D3212 lab test and ASTM F1417 Water tight field test requirement.

B. Fittings:
1. High density polyethylene meeting the properties specified for the pipe.
2. Either molded or fabricated. Bell and spigot connection.
3. Designed specifically for the pipe furnished and manufactured by the pipe manufacturer.

PART 3 EXECUTION

3.01 EXISTING PIPE CLEANING

A. Remove debris and flush clean existing storm water piping.

3.02 INSTALLATION

Installation of HDPE pipe material shall be strictly followed the manual of Manufacturer.

A. Laying: Lay pipe to indicated line and grade with a firm uniform bearing for the entire length of the pipe. Fill excess excavation with suitable materials and tamp.

B. Joints: Install coupling and fastening according to manufacturer's instructions.

C. Connections:
1. Make connections to existing pipe by using a galvanized steel "dimple"-type coupling. Remake damaged existing joints.
2. Make connections to existing manholes and drainage structures by cutting into the floor or bench of the manhole or drainage structure and forming a new channel.
3. If the pipe, manholes or other structures with which connections are to be made have not yet been installed, install the pipe to a point directed and plug or cap the end in a satisfactory manner.

3.03 LEAKAGE TESTS

A. Prior to backfilling and laying additional pipe, test the first 100 feet of storm sewer construction for leakage.
1. Fill the storm sewer pipe with water and maintain a head two feet above the highest section of Work being tested. Measure the quantity of leakage. When the sewer being tested in constructed in water bearing soil, the leakage test may, be made by measuring the quantity of

infiltration into the sewer. The allowable leakage or infiltration shall not exceed 45 gallons per 24 hours per inch pipe diameter per 1000 feet of sewer being tested. Water testing of HDPE piping shall be considered a failure when a sustained and noticeable water leak is seen at the joints.

END OF SECTION 026350

SECTION 027220 - PRECAST CONCRETE CATCH BASINS AND MANHOLES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Provide precast concrete catch basins and manholes as indicated on the Drawings and as specified herein. Subsequently, in this Section, these items will be referred to as "precast units".

B. Provide all frames, covers, traps, steps/rungs, and other miscellaneous items to be fabricated with or installed on the precast units.

C. Contractor shall field verify existing catch basin and manhole structure and provide new structural modification work, which includes new steel plank and HS20 concrete slab to accommodate new ADA catch and manhole cover basin replacing work.

D. To replace the existing manhole cover, Contractor shall remove the cover and frame and provide new adjusting brick and cover and frame. Top of cover and frame shall be flush with new paver.

1.3 RELATED SECTIONS

A. Earthwork: Section 02300

B. Grouting: Section 03610

1.4 REFERENCES

A. American Society for Testing and Materials (ASTM)

B. Federal Specifications (FS)

C. American Association of State Highway and Transportation Officials (AASHTO)

D. International Concrete Repair Institute (ICRI)

1.5 DESIGN REQUIREMENTS

A. Precast units shall meet NYS DEP requirements and be capable of withstanding an AASHTO HS20 loading.

B. Precast units shall be manufactured using normal weight concrete with a minimum compressive strength of 4000 psi, air-entrained, and a maximum water to cement ratio of 0.42 as per ACI 318 Latest Version.

1.6 SUBMITTALS

A. Product Data
Submit manufacturer's product data on each of the following:
1. Each type of cast iron cover and frame
2. Each type of step/rung
3. Butyl Gasket
4. Coating

B. Shop Drawings
Before casting units, submit shop drawings of each item to be cast, showing details of all pipe entries, finish grades and other pertinent information. Ensure the orientation of the catch basin properly accounts for the required grating slot direction.

C. Quality Control Submittals
1. Design Data: Submit design mixes for concrete, including list of admixtures to be used, and preliminary trial mix test results.
2. Test Reports: Daily testing logs.
3. Certification: From testing laboratory that construction of the precast units is in compliance with the requirements of NY State DEP and this specification.
4. Contractor Qualifications: Provide proof of Manufacturer and Concrete Laboratory qualifications specified under "Quality Assurance".

1.7 QUALITY ASSURANCE

A. Qualifications
1. Precast Unit Manufacturer: Company specializing in the production of precast concrete site structures shall have a minimum of five years experience.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and handle precast units in such manner so as not to damage the units.

PART 2 PRODUCT

2.1 MANUFACTURERS

A. Precast Units
1. Woodwards Precast Corp., Bullyville, NY
2. All Castel Precast Concrete.
3. Shea Concrete Products – MA/NH
4. Coastal Pipeline Products Corp., Calverton, NY 11933

B. Coatings

1.	Tnemec Company, Inc.	Kansas City, MO 64141
2.	Carboline Company	St. Louis, MO 63144
3.	Sherwin Williams Corp.	Cleveland, OH 44101
4.	M. A. B. Paint	Broomall, PA 19008
5.	Mercury Paint Corp.	Brooklyn, NY 11203

C. Cast Iron Frames and Covers

1.	Campbell Foundry Co.	Harrison NJ 07029
2.	Neenah Foundry Co.	Neenah WI 54956
3.	McKinley Iron Works, Inc.	Worth TX 76101

D. Precast Unit Steps/Rungs

1.	Campbell Foundry Co.	Harrison NJ 07029
2.	Neenah Foundry Co.	Neenah WI 54956
3.	McKinley Iron Works, Inc.	Worth TX 76101
4.	M.A. Industries Inc.	Peach Tree City, GA 30269

E. Self-sealing Butyl Gasket

1.	Hamilton Kent	Kent, OH 44240
2.	Allstate Gasket & Packing, Inc.	Hicksville, NY 11801
3.	Darcoid Co., Inc.	Hicksville, NY 11801

F. Expansion Screw Anchors

1.	Simpson Strong-Tie Co., Inc.	Addison, IL 60101
2.	Powers Fastening, Inc.	New Rochelle, NY 10802
3.	Hilti Corp.	Tulsa, OK 21148

2.2 MATERIALS

A. Cement
Shall conform to ASTM C150, Type II, and shall be of the non air-entrained types:

B. Admixtures
1. The use of admixtures shall comply with the requirements of NY State Building Code. The final soluble chloride content in concrete, percent by weight of cement, due to the addition of admixtures and other ingredients shall not exceed .05 at 28 days.
2. Air-entraining admixtures shall conform to ASTM C260.

3. Chemical admixtures shall conform to ASTM C494.
4. Slag cement: ASTM C989, Grade 100 or 120. Shall be GranCem slag cement as manufactured by the St. Lawrence Cement Company.

C. Water
Shall be clean potable water free of injurious foreign matter conforming to the requirements for water specified in ASTM C94.

D. Aggregates
Fine and coarse aggregates shall be regarded as separate ingredients. Each size of coarse aggregate, as well as the combination of sizes when two or more are used, shall conform to the appropriate grading requirements of the applicable ASTM specifications. Maximum size of coarse aggregate shall conform to paragraph 3.3.3 of ACI 318. Aggregates shall conform to ASTM C33 and be of Size No.67 or No.8.

E. Concrete Reinforcement
1. Reinforcing Bars: All reinforcing bars shall be of deformed type of new billet steel conforming to current requirements of ASTM A615, grade 60. No rail or re-rolled steel will be permitted.
2. Welded Steel Wire Fabric: Wire Fabric shall conform to the requirements of ASTM A185.

F. Manhole Frame and Cover (for New Manhole and Manhole Replacement)
Neenah Foundry Co. #R-1783-A cast iron frame and cover with Type "G" tightening bar (pentagonal head) or equal product manufactured by Campbell Foundry or McKinley Iron Works, Inc.

G. Catch Basin Frame and Cover
Type 1: Pedestrian Area
Campbell Foundry Co. Pattern No. 2815ADA, cast iron frame and ADA grate, or equal product manufactured by Neenah Foundry or McKinley Iron Works, Inc.
Type 2: Roadside
Campbell Foundry Co. Pattern No. 3407 cast iron frame and Bike Safe Grate or equal product manufactured by Neenah Foundry or McKinley Iron Works, Inc.

H. Precast Unit Steps/rungs:
1. Campbell Foundry Co. Pattern #2592 (cast iron, diamond non-skid design) or equal product manufactured by Neenah Foundry or McKinley Iron Works, Inc. with stainless bolts and washers with Ackerman-Johnson Expansive Screw Anchors (Cat. No. 762-62, with non-corrosive brass cones) and 1/4-inch thick neoprene gaskets.
2. M.A. Industries Inc. Model PS-4-B copolymer polypropylene plastic surrounding 1/2-inch diameter grade 60 reinforcement.

I. Self-sealing Butyl Gasket
7/8" x 7/8" or 1" diameter conforming to Fed. Spec. SS-S-00210.

J. Expansion Screw Anchors with malleable lead shields in accordance with Federal Specifications FF-S-325C,Group 1, Type 1, Class 1.

K. Interior Coating
Two component high solids epoxy polyamide coating in accordance with ANSI/NSF Standard 61 meeting the performance characteristics of Tnemec Series 66 Hi-Build Epoxoline or Carboline Carboguard 888.

L. Exterior Coating
Two component coal tar-epoxy coating meeting the performance characteristics of Tnemec 46-413 Tneme-Tar or Carboline Bitumastic 300M.

2.3 MIXES

A. General
Concrete for all parts of the Work shall be of the specified quality capable of being placed without excessive segregation and, when hardened, of developing all characteristics required by the Specifications and Drawings.

B. Strength
Strength requirements given in Part 1 of this Specification are based on 28-day compressive strength.

C. Provide the following air content for the grading size of coarse aggregate as follows:
1. No.8.....71/2%
2. No. 57 or 67.....6%
Tolerance on air content as delivered shall be +1.5%.

2.4 FABRICATION

A. Fabricate the precast units to the sizes and shapes shown on the Drawings, with pipe openings, precast collars, rungs/steps, lift inserts and other items as indicated.

B. Cast units in tight, well-built forms; vibrate concrete to ensure smooth, laitance-free surfaces.

C. Finished units shall be warp-free, of uniform thicknesses with shapes, sizes, pipe openings, inserts and all other details as shown on the Drawings and as specified herein.

D. Provide 5/8" threaded dowels at pipe opening locations to provide attachment for piping.

E. Provide scoring for bond on bottom slab of the precast units as detailed on the Drawings. Provide keys at all joints.

2.5 PROTECTIVE COATINGS

A. Interior coating for precast units
   1. Surface preparation
      a. Surfaces shall be cleaned free of dust, oil, grease, laitance, or any other foreign matter.
      b. Surfaces shall be acid etched or whipblasted to provide an ICRI CSP 1 surface prep.
   2. The epoxy coating is to be applied in two applications. While the surface preparation is to be done at the plant, the contractor has the option of having the first application of the coating done in the plant or having both applications done in the field. Apply at a rate of 4.0 mils DFT per coat. Apply in strict accordance with the manufacturer's recommendations.

B. Exterior coating for precast units
   Provide for units and surfaces specified to receive it.
   1. Surface preparation
      a. Surfaces shall be cleaned free of dust, oil, grease, laitance, or any other foreign matter.
      b. Surfaces shall be acid etched or whipblasted to provide an ICRI CSP 1 surface prep.
   2. The coal tar-epoxy coating is to be applied in two applications. While the surface preparation is to be done at the plant, the contractor has the option of having the first application of the coating done in the plant or having both applications done in the field. Apply at a rate of 8.0 mils DFT per coat. Apply in strict accordance with the manufacturer's recommendations.

2.6 SOURCE QUALITY CONTROL

A. Special inspection and testing shall be in compliance with the New York State Building Code and shall be in compliance with the standards of construction established by the Bureau of Sewers for manhole construction, and shall include, but not be limited to the following procedures:
   1. All testing shall be in accordance with New York State Building Code requirements and the applicable ASTM’s.
   2. Perform daily batch plant inspection to ascertain that proper concrete material gradations are performed. Sieve both fine and coarse aggregates to check gradations.
   3. Calculate fineness modulus and percent moisture on a daily basis.
   4. Verify mill certificates for cement.
   5. Verify mix designs by checking computer printout tapes or scale measurement proportioning of materials.
   6. Inspect formwork and reinforcement for manhole, risers, bases, collars and covers.
   7. Inspect methods and concrete placement.
   8. Prepare a minimum of four concrete cylinders for each 50 yards batched.
   9. Tag and verify, independently, manholes and catch basins and ancillary parts with each group of cylinders.

10. Tag and report cylinders with corresponding manhole castings on a daily basis.
11. Check slump, air content, weight per cubic foot and temperature for each batch prepared.
12. Store cylinders in a proper humidified room under Laboratory's directions.
13. Inspect and verify that formwork remains intact in a properly controlled area for 24 hours minimum.
14. Cap and break cylinders at 7 and 28 days or until full design strength is achieved. At that time break a minimum of two cylinders. Store the remaining cylinders prepared in a batch for 28 days before discarding.
15. Inspect completed precast unit components for defects and voids prior to shipment to the job-site.
16. Monitor material and finish product handling to assure that unnecessary vibrations are not imparted to the cast concrete.

C. Before delivering the precast units to the jobsite, the Contractor shall submit the following:
1. Copies of daily logs of the testing laboratory, indicating pertinent information.
2. Certification from the testing laboratory that construction of the precast units is in compliance with the requirements of the Department of Design and construction, Division of Infrastructure, and Department of Environmental Protection of the State of New York.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install precast units at locations shown on the Drawings; place level and plumb, and to proper depths. Catch basins are to be placed to ensure that the long direction of the slot of the grating will be perpendicular to the flow of pedestrian traffic. Coordinate with pipe connection locations. Install butyl gaskets at joints on both horizontal surfaces of keyed joint, in such manner to seal each joint completely, providing adequate lap. One 9” or less diameter opening per unit is permitted to be core drilled in the field due to fabrication errors. Any other unit requiring greater diameter or greater opening shall be rejected.

B. Install precast collars and manhole brick set in Type M mortar to allow for placement of the covers at the correct rim invert elevation.

C. Install cast iron frames and covers, as detailed on the Drawings and as recommended by the manufacturer. Grates are to be placed with the long direction of the slot perpendicular to the flow of pedestrian traffic when placed in walkways.

D. Units with large spalls (greater than 2” in depth and 2 SF in area) and openings greater than 9” in diameter placed in the wrong location are

rejected and shall be replaced. Minor spalls and openings 9" or less placed in the wrong location are to be patched as follows:

1. Roughen surface or perimeter of opening to a fractured aggregate surface.
2. In openings, drill and install a minimum of four 1/2" dia ss expansion anchors with 4" extension.
3. At openings, install butyl sealant around perimeter.
4. Apply slurry coat of hydraulic repair mortar to all surfaces to receive repair mortar.
5. Install hydraulic repair mortar to match existing contours and thicknesses of members.

E. After installation of the precast units and before backfilling, provide protective coatings as follows:

1. Interior: If the first coat was applied in the shop, lightly clean and roughen the surface and touch up areas of damage with the same coating. Apply a second coat at 4.0 mils DFT. IF both coats are to be applied in the field, apply each coat at 4.0 mils DFT per coat, allowing the manufacturer's recommended cure time between coats. If second coat is not installed within manufacturer's specified time parameters, lightly roughen prior to second coat.
2. Exterior, for those surfaces and units designated to receive it: If the first coat was applied in the shop, lightly clean and roughen the surface and touch up areas of damage with the same coating. Apply a second coat at 8.0 mils DFT. IF both coats are to be applied in the field, apply each coat at 8.0 mils DFT per coat, allowing the manufacturer's recommended cure time between coats. If second coat is not installed within manufacturer's specified parameters, lightly roughen prior to second coat.

F. Make pipe-to-precast unit connections using non-shrink grout.

G. For replacing of existing catch basin frame and cover with ADA grating and frame work, Contractor shall field verify the existing catch basin concrete structure and provide HS20 slab to accommodate the new ADA type frame and cover.

H. Remove existing manhole cover and frame and provide new cover and frame for manhole cover replacement work. New manhole cover and frame adjustment work shall be able to sustain HS20 load.

END OF SECTION 027220

SECTION 02 82 13

ASBESTOS ABATEMENT

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.

5) Refer to Section 02 82 15 – Asbestos Encapsulation for additional requirements.

STATE UNIVERSITY CONSTRUCTION FUND
ASBESTOS MATERIAL REMOVAL FACT SHEET

291036-02 SUCF PROJ NO. **REHABILITATE ADMINISTRATION BUILDING** PROJECT TITLE _____ DATE

SCOPE OF WORK: _____
_____

ASBESTOS CONTRACTOR:
Name/Address _____
_____
_____
_____
_____
_____
Phone No.: _____
_____

PRIME CONTRACTOR:
(If applicable)

Phone No.

Contract Award Amount: _____
Contract Completion Date: _____

Asbestos Lic No. _____
Expiration Date: _____

ASBESTOS ABATEMENT PERSONNEL: *(Attach Additional Sheets as Required)*

	Name	Expir. Date	Title/Function	Social Security No.	Certificate No.
1.					
2.					
3.					
4.					
5.					

ASBESTOS ABATEMENT WORK: *(Attach Additional Sheets as Required)*

	Bldg (1) Usage	Removal Location (Bldg/Room)	Mat'l (2) Removed.	Methods Quantity (3)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	F	Dormitory
B	Academic	G	Mechanical Room
C	Library	H	Steam Tunnel
D	Health/Physical Education	I	Other
E	Dining Halls		

MATERIAL REMOVED

Acoustical/Decorative Plasters =	ADP
Fireproofing Materials =	FM
Troweled Wall/Ceiling Plasters =	TCP
Mud Joints/Tees =	MJT
Pipe Covering =	PC (List Pipe Size)
Boiler/Hot Water Tank Insulations =	BHTI
Panels/Ceiling Tiles =	PCT
Transite Panels =	TP
Vent/Drain Pipes =	VDP (List Size)
In-Place Gaskets =	IPG
Vinyl Asbestos Siding =	VAS
Vinyl Asbestos Tile =	VAT
Vinyl Asbestos Roofing =	VAR
Other (Describe) =	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 02 82 15

ASBESTOS ENCAPSULATION

The following shall apply to the encapsulation 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. This work is being performed in conjunction with the work of Section 02 82 13 – Asbestos Abatement. All provisions of that specification section apply as if reinstated herein in their entirety. Scope of work included requires management of fiber and particulate release from potentially asbestos-containing materials, and fiber clean-up as necessary.

c. 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.

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. Definition: ENCAPSULATION: Treatment of asbestos-containing materials (ACM) with a sealant material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers. A bridging encapsulant creates a membrane over the surface. A penetrating encapsulant penetrates the material and binds its components together. Legitimate encapsulants in the US that can be considered abatement must be designed specifically for the purpose of asbestos encapsulation, and the manufacturer shall provide performance data supporting that the barrier between the living environment and the encapsulated ACM can be considered permanent.

f. References:
   1) Evaluation of Asbestos Abatement Techniques. U.S. Environmental Protection Agency (USEPA, EPA), Office of Toxic Substances, EPA 560/5-86-016, July 1986, Washington, DCviii
   2) Evaluation of Encapsulants for Friable Asbestos-Containing Materials (1981-1984) by Battelle Laboratories, Columbus, Ohioix
   3) Managing Asbestos In Place: A Building Owner's Guide to Operations and Maintenance Programs for Asbestos-Containing Materials. EPA Office of Pesticides and Toxic Substances. 20T-2003, July 1990.x
   4) Guidelines for the Use of Encapsulants on Asbestos-Containing Materials, Appendix A "A Test Which Indicates Whether Friable Asbestos-Containing Material Can Sustain the Weight of an Encapsulant", by EPA Office of Toxic Substances, June 1981, Washington, DCxi
   5) Fire Resistance Directory (BXRH), Underwriter's Laboratories, 2001. Fire-Resistance Ratings – ANSI/UL 263 (BXUV), II General, subsection 6 Exposed Interior Finishesxii
   6) Guidance for Controlling Asbestos-Containing Materials in Buildings. Office of Pesticides and Toxic Substances, EPA 560/5-85-024, June 1985, Washington, DC. (Commonly referred to as the EPA Purple Book).xiii
   7) A Coatings Compendium: Asbestos Encapsulation, by Cole Stanton. Restoration & Remediation, August 2014xiv

8) The Applicability of TAHPR and NESHAP to Painting Asbestos-Containing Materials (ACM). Texas Department of Health (TDH), Toxic Substances Control Division. ARC010, November 2001.xv
9) Commandant Instruction 6260.1.A: Subject: Asbestos, Lead and Radon in Coast Guard Housing. United States Coast Guard (USCG), 2004, Washington, DC.xvi
10) Model Asbestos Abatement Guide Specification. National Institute of Building Sciences, July 1986. Section 15254xvii

g. Submittals: Prior to commencement of the work on this project, the Contractor must submit the following to the Owner:

1) Product Information - Encapsulant, Mask, etc.
2) Material Safety Data Sheets.

h. Special Requirements

1) The drawings, schedules and specifications indicate the applicable scope of encapsulation 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) The completed system will be an off-white, penetrating encapsulant. The resulting encapsulation will be a laminar film of sufficient build and cohesion that fibers cannot become airborne, nor are fibers generated by incidental physical contact.

5) Encapsulants shall be a ready-mixed coating material of vinyl-acrylics and water-based resins, various flame retardant chemicals and fillers as listed below:

a. SerpiFlex Concentrated Asbestos Encapsulant by Fiberlock Technologoes.
b. Protektor Sealant by Foster, Specialty Construction Brands, Inc. an H.B. Fuller Company
c. PowerChem White Lockdown 900W
d. ChemSafe, Asbestos Encapsulant, 500W Lockdown

; or approved equal.

i. Application: Comply with manufacturer specific application procedures using airless spray equipment as indicated below, directly to the exposed substrate from which the ACM has been removed in a continuous manner at an application rate of 400-600 sq.ft./gal. Porous or uneven surfaces may require additional materials.

j. Clean-Up: Use fresh water to clean equipment before product dries. Dry product may be removed with hot soapy water only. No chemical cleaners are permitted.

SECTION 02 83 13

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.

Adelaide
ENVIRONMENTAL HEALTH

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Buffalo, NY 14221 716.402.4580
E-mail: adelaidemail@adelaidellc.com
Fax: 845.278.7750

LIMITED SURVEY
FOR
ASBESTOS-CONTAINING MATERIALS, LEAD-BASED PAINT & PCBs

PERFORMED AT:

SUNY Purchase
735 Anderson Hill Road
Purchase, New York 10577
Adelaide Project# KHA: 19242.00-IN

PREPARED FOR:

Mr. Michael Maza
Kliment Halsband Architect
322 Eighth Avenue
New York, New York 10001

PREPARED BY:
David Seddon
October 2, 2019

REVIEWED BY:

Stephanie A. Soter
President

TABLE OF CONTENTS

APPENDICES

1.0 Introduction

1.1 Scope of Work / Project Personnel

Adelaide Environmental Health Associates, Inc. **(Adelaide)** performed an Asbestos, Lead and PCB Survey for Building/Structure Demolition, Renovation, Remodeling and/or Repair, in conformance with ALL Federal, State and Local regulations, on September 19, 2019 for Kliment Halsband Architect throughout the first, second and third floor levels at the administration building, located at SUNY Purchase College in Purchase, New York. The survey included 1) review of building/structure plans, provided by Kliment Halsband Architect dated September 3, 2019 for location of areas where probes are going to be conducted, for references to the scope of work potentially affecting hazardous materials used in construction, renovation or repair; and, 2) a visual inspection/assessment for hazardous materials throughout accessible interior and/or exterior spaces of the building/structure or portion thereof identified to be demolished, renovated, remodeled or repaired. Certified **Adelaide** personnel (Appendix E), David Seddon (NYS Asbestos Inspector/Cert. #09-08546), performed the visual assessment throughout inspection area(s) identified.

Adelaide utilized inspection results that were conducted for the administration building from March 25th through May 27th, 2016. All results can be found in appendices C and D.

1.2 Executive Summary

Adelaide inspected all areas that will be affected by the renovation work and probes for suspect ACM, LBP and PCBs. **Adelaide** collected fourteen (14) suspect asbestos samples/layers, zero (0) XRF readings [including calibrations] and zero (0) suspect PCB samples from the above-mentioned area(s). Three (3) samples/homogenous areas tested positive for asbestos.

1.2.1 Conclusions and Recommendations

The following conclusions and recommendations are prepared by **Adelaide** as per the provided scope of work for Building/Structure Demolition, Renovation, Remodeling and/or Repair. Should the scope of work change, it is recommended that the findings be revisited to determine if additional sampling will be required to satisfy ALL Federal, State and Local regulations.

1.2.2 Asbestos-containing Materials (ACM)

- This survey concluded that the materials listed in Section 2.1 tested ***positive for asbestos***.

- Subpart 56-5(h) of 12 NYCRR Part 56 requires that no demolition, renovation, remodeling, or repair work be commenced by any owner or the owner's agent prior to the completion of asbestos abatement. Asbestos abatement must be performed by an asbestos abatement contractor that maintains a current asbestos handling license, and employs NYSDOL/NYCDEP certified asbestos handlers and supervisors. It is recommended that a 12 NYCRR 56 certified Project Monitor oversee abatement activities.

- Subpart 56-5(g) of 12 NYCRR Part 56 specifies requirements for transmittal of asbestos survey information by the owner or owner's agent. (1) One copy of the asbestos survey report shall be sent

to the local government entity charged with issuing a permit for such demolition, renovation, remodeling, or repair work under applicable State or local laws. (2)If controlled demolition or pre-demolition activities will be performed, one copy of the asbestos survey report shall be submitted to the appropriate Asbestos Control Bureau district office. (3) One copy of the asbestos survey report must be kept on the construction site throughout the duration of the asbestos project and any associated demolition, renovation, remodeling, or repair project.

1.2.3 Lead-based Paint (LBP)

- This survey concluded that the materials listed in Section 2.4 tested ***positive for lead-based paint.***
- These areas must be either abated or Lead safe work practices must be implemented during the demolition, renovation, remodeling, or repair activities if these areas are to be disturbed.

1.2.4 PolyChlorinated Biphenyls (PCB)

- This survey concluded that no suspect PCB-containing materials were observed to be impacted by the above-mentioned scope of work.

2.0 Summary of Hazardous Materials

2.1 Summary of Identified ACM/PACM

KEY: **ACM** = Materials containing greater than 1% of asbestos; **HA** = Homogeneous Area; **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.

Samples collected by **Adelaide** September 19, 2019

HA	Identified ACM	ACM Location(s)	Approx. Qty.	Condition	Friable? (Yes or No)
004	2nd Layer Tile with Mastic	Spaces 1002 G and H	200SF	Good	No
005	3rd Layer – Tile	Spaces 1002 G and H	200SF	Good	No
006	Bottom Layer Material	Spaces 1002 G and H	200SF	Good	No

Samples collected by **Adelaide** March 25, 2016 and April 13, 2016

HA	Identified ACM	ACM Location(s)	Approx. Qty.	Condition	Friable? (Yes or No)
003,110	Wall Plaster – Base Coat	Throughout Building	60,000-80,000SF	Good	Yes
005	Ceiling Plaster – Base Coat	Throughout Building	30,000SF-60,000SF	Good	Yes
010	Joint Compound	Basement Area 0007	250SF	Damaged	Yes
015	Materials behind Heat Shield for Radiators	Basement Area 0004	60SF	Damaged	Yes

HA	Identified ACM	ACM Location(s)	Approx. Qty.	Condition	Friable? (Yes or No)
016	Pipe Insulation Debris	Basement Area 0004 – Pipe Insulation is Assumed to Exist within Wall Cavities	2SF	Sig. Damaged	Yes

Samples collected by **Adelaide** May 13, 2016 and May 27, 2016

HA	Identified ACM	ACM Location(s)	Approx. Qty.	Condition	Friable? (Yes or No)
006	Wall Plaster – Top Coat	Throughout	60,000-80,000SF	Sig. Damaged	Yes
008	Ceiling Plaster – Top Coat	Throughout	30,000SF-60,000SF	Sig. Damaged	Yes
010	Wall Plaster – Base Coat	Presidents Apartment	5,000 SF	Damaged	Yes
030	Ceiling Plaster – Base Coat	3rd Floor Center Section	5,000 SF	Damaged	Yes

2.2 Summary of Identified Non-ACM

Samples collected by **Adelaide** September 19, 2019

Identified Non-ACM	Sample Location(s) & HA's
Carpet Adhesive	Throughout Building under Carpet
Sheet Flooring (Linoleum)	Spaces 1002 G and H
Sheet Flooring Black and White (Linoleum)	Spaces 1002 G and H
Barrier Material under Wood Floor	Throughout Building under Wood Floors

Samples collected by **Adelaide** in 2016

Administration Building

- Tar Paper Behind Wood
- Wall Plaster Top Coat
- Ceiling Plaster Top Coat
- Stair Covering
- Flue Sealant
- Stone Mortar
- Drywall
- Red Firestop
- Ceramic Floor Grout
- Concrete
- Black Wall Mastic
- Brick Mortar
- Fireplace Stone and Brick Mortar
- Black Border Floor Tile
- Tan with Swirls Floor Tile
- Black Floor Mastic

- Beige Flooring and Felt
- Small Black and Brown Flooring
- Black Flooring on Concrete
- 12x12 Beige Floor Tile
- Beige with Brown Streaks Floor Tile
- 12x12 Gray Floor Tile
- 12x12 White Floor Tile
- 12x12 Black Floor Tile
- 4" Vinyl Covebase and Mastic
- Textured Ceiling
- Brown Floor Mastic
- 9x9 Ceramic Floor Mortar
- Blown In Insulation
- Canvas Wrap Over Horsehair Insulation
- Roof Shingles and Felt
- Window Caulk
- Wire Insulation

2.3 ACM Photos

HA 004 2nd Layer Tile with Mastic 1.6% Chrysotile	

HA 005 3rd Layer Tile 1.6% Chrysotile		
HA 006 Bottom Layer Material 1.7% Chrysotile		

2.4 Summary of Identified LBP

Based on review of the data generated by the Thermo Scientific Niton XLp 300A 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):

Readings collected by **Adelaide** March 23, 2016 – March 25, 2016

Location of LBP	LBP Component	Substrate	Color	Condition	Readings (mg/cm2)
Basement 0004	Door	Metal	Brown		*11.25*
Basement 0009	Wall	Plaster	White		*13.05*
1st Floor 1005	Wall	Plaster	White		*27.60*
1st Floor 1005	Ceiling	Plaster	White		*5.25*
1st Floor 1005D	Wall	Plaster	White		*27.45*
2nd Floor 2020	Radiator	Metal	White		*5.10*
2nd Floor 2012	Doo	Wood	White		*18.75*
2nd Floor 2012	Door Frame	Wood	White		*7.00*
2nd Floor 2012	Wall	Plaster	Beige		*20.40*

Location of LBP	LBP Component	Substrate	Color	Condition	Readings (mg/cm2)
2nd Floor 2010	Wall	Plaster	Yellow		*26.10*
2nd Floor 2010	Door Frame	Wood	Brown		*46.65*
2nd Floor 2010	Door	Wood	Brown		*48.30*
2nd Floor 2011	Wall	Wood	Beige		*28.65*
2nd Floor 2011	Door Frame	Wood	White		*37.05*
2nd Floor 2011	Door	Wood	White		*24.90*
2nd Floor 2008a	Wall	Plaster	Green		*15.60*
2nd Floor 2008a	Door Frame	Wood	White		*25.05*
2nd Floor 2007	Door Frame	Wood	White		*2.10*
2nd Floor 2007	Door	Wood	White		*23.55*
3rd Floor 3005	Wall	Plaster	Beige		*20.70*
3rd Floor 3011	Wall	Plaster	Beige		*24.75*
3rd Floor 3001	Wall	Plaster	Beige		*16.20*
3rd Floor 3001	Ceiling	Plaster	White		*7.50*
1st Floor 1001	Door	Wood	White		*5.60*
1st Floor 1001c	Wall	Metal	Beige		*20.85*
1st Floor 1001c	Wall	Wood	White		*38.25*
1st Floor 1001c	Door Frame	Wood	White		*29.85*
1st Floor 1001c	Door	Wood	White		*24.60*
Exterior	Wall	Wood	White		*46.95*
Exterior	Column	Metal	Gray		*1.40*

2.5 Summary of Identified PCB-containing Materials

Samples collected by **Adelaide** September 19, 2019

Sample #	Location / Description	Material Matrix	Color	Substrate	Analytical Result
NO suspect PCB-containing materials were observed to be impacted by the above-mentioned scope of work.					

2.6 Observations

ASBESTOS-CONTAINING MATERIALS (ACM)

A visual inspection was performed and homogeneous 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.

Representative bulk sampling was performed on suspect building materials for laboratory analysis and the following is a summary of installed building materials sampled as per the scope of work provided:

- Flooring Materials – Sheet Flooring (multiple types), Tile and Mastic Layers (multiple types).

- Non-suspect Materials (not sampled) – Wood, Glass, Metal.

POLYCHLORINATED BIPHENYLS (PCB)
It was observed that no suspect pcb-containing materials were to be disturbed by the proposed probe locations.

3.0 Asbestos-containing Materials (ACM)

3.1 Field Procedures and Analysis Methodology

Guidelines used for the inspection were established by the U.S. Environmental Protection Agency (EPA) in the Guidance for Controlling Asbestos Containing Materials in Buildings, Office of Pesticides and Toxic Substances, DOC# 560/5-85-024 and 40 CFR Part 763, Asbestos Hazard Emergency Response Act (AHERA) and Title 12 NYCRR Part 56-5.1. Field information was organized as per the AHERA concept of a homogeneous area (HA); that is, suspect Asbestos-containing Materials (ACM) with similar age, appearance, and texture were grouped together, sampled and assessed for condition.

For the purposes of this inspection, suspect ACM has been placed in three material categories: thermal, surfacing, and miscellaneous. 1) Surfacing materials are those that are sprayed on, troweled on or otherwise applied to surfaces for fireproofing, acoustical, or decorative purposes (e.g., wall and ceiling plaster). 2) Thermal materials are those applied to heat pipes or other structural components to prevent heat loss or gain or prevent water condensation (e.g., pipe and fitting insulation, duct insulation, boiler flue). 3) Miscellaneous materials are interior building materials on structural components, structural members or fixtures, such as floor and ceiling tiles, etc. and do not include surfacing material or thermal system insulation.

SURFACING MATERIALS
Surfacing materials were grouped into homogeneous sampling areas. A homogeneous area contains material that is uniform in color and texture and appears identical in every other respect. Materials installed at different times belong to different sampling areas. Homogeneous areas were determined on per floor basis.

The following protocol was used for determining the number of samples to be collected:

- At least three bulk samples were collected from each homogeneous area that is 1,000 square feet or less.
- At least five bulk samples were collected from each homogeneous area that is greater than 1,000 square feet but less than or equal to 5,000 square feet.
- At least seven bulk samples were collected from each homogeneous area that is greater than 5,000 square feet.

THERMAL SYSTEM INSULATION (TSI)

The concept of homogeneous sampling areas applies equally well to thermal insulation as to surfacing material. A "typical" building may contain multiple insulated pipe runs from any combination of the following categories:

- Hot water supply and/or return
- Cold water supply
- Chilled water supply
- Steam supply and/or return
- Roof or system drain

The following protocol was used for determining the number of samples to be collected.

- Collect at least three bulk samples from each homogeneous area of thermal system insulation.
- Collect at least one bulk sample from each homogeneous area of patched thermal system insulation if the patched section is less than 6 linear or square feet.
- In a manner sufficient to determine whether the material is ACM or not ACM, collect a minimum of three bulk samples from each homogeneous insulated mechanical system tee, elbow, and valve.

Bulk samples are not collected from any homogeneous area where the certified inspector has determined that the thermal system insulation is fiberglass, foam glass, or rubber.

MISCELLANEOUS MATERIALS

Miscellaneous materials are grouped into different homogeneous areas and at least two bulk samples are collected from each homogeneous area as per the clarification letter from the EPA and the Professional Abatement Contractors of New York, Inc in November of 2007.

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.

3.2 Regulatory Guidelines and Requirements for ACM

FEDERAL

In accordance with the Clean Air Act (CAA), the U.S. Environmental Protection Agency (EPA) established National Emission Standards for hazardous Air Pollutants (NESHAP) to protect the public from exposure to airborne pollutants. Asbestos was one of the air pollutants, which was addressed under the NESHAP 40 CFR Part 61. The purpose of asbestos NESHAP regulations is to protect the public health by minimizing the release of asbestos when facilities, which contain ACM, are being renovated or demolished. EPA is responsible for enforcing regulations related to asbestos during renovations and demolition, however, the CAA allows the EPA to delegate this authority to State and Local Agencies. Even after EPA delegate's responsibility to a state or Local agency, EPA retains the authority to oversee agency performance and to enforce NESHAP regulations as appropriate.

NEW YORK STATE

Asbestos in New York State is regulated under the Labor Law Section 906, Part 56 of Title 12 of the Official Compilation of Codes, Rules, and Regulations. Within the department and for the purpose of the Department of Labor, this part (rule) is known as Industrial Code Rule No. 56 (ICR 56) relating to hazards to the public safety and health, during the removal, encapsulation, or disturbance of friable asbestos, or any handling of ACM that may result in the release of asbestos fiber.

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." 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.

NEW YORK CITY

Asbestos Control Program (ACP), Title 15, Chapter 1 of the New York City Department of Environmental Protection (NYCDEP) regulates all asbestos abatement activities occurring within the City of New York. The ACR regulations also require asbestos surveys and abatement work to be performed by a NYCDEP certified asbestos investigator and asbestos workers, respectively.

The New York City Department of Buildings (NYCDOB) requires an ACP notification to be included with the renovation/demolition permit applications. The notification is performed using an ACP 5 or ACP 20/21 forms.

All confirmed ACM will need to be removed prior to any building renovation or demolition. The removal and disposal of ACM must be performed by a NYS-DOL licensed asbestos handling contractor in accordance with Federal, state, and local regulations. Proper notifications must be filed with the US-EPA, NYS-DOL, NYC-DEP and other regulatory agencies prior to performing such activities.

As required by the NYS-DOL and NYC-DEP regulations, the abatement project must be monitored by a NYS-DOL certified project monitor. The project monitor oversees contractor's work practices and also performs

pre, during, and final clearance post abatement air sampling in accordance with the state and city regulations.

CONCEALED ACM

In addition to the ACMs identified at the site, there is a possibility that concealed suspect ACM may exist at the building/structure. 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.

4.0 Lead-based Paint (LBP)

4.1 Applicable Standards/Guidelines for LBP

The U.S Department of Housing and Urban Development (HUD) defines the action level for lead-based paint as a lead content equal to or greater than 1.0 milligrams of lead per square centimeter of painted surface ($\geq$1.0 mg Pb/cm^2) when measured with an XRF analyzer or 0.5 percent by weight when chemically tested. This definition is described in the HUD "Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, September 1990". The state of New York's definition of the action level for lead-based paint is consistent with the level established by HUD.

Please note that although the HUD defines lead based paint as paint having lead concentrations equal or greater than 1.0 mg/cm2, the Occupational Safety and Health Administration (OSHA) considers any concentration of lead in paint to be lead containing paint. Regardless of the lead concentrations in paint, the contractor shall comply with 29 CFR 1926.62, OSHA regulations, and take precautionary measures for dust control and limit employee exposure to lead dust during the renovations.

Painted surfaces that would be impacted by planned activities such as drilling, cutting, scrapping, etc. and create dust should be properly addressed by following safe work practices, good housekeeping procedures and/or following proper abatement procedures. Grinding and sanding of paint without HEPA filter exhaust, open flame gas fired torch, unconfined abrasive blasting, and chemical strippers containing methylene chloride or other human carcinogenic chemicals are not recommended.

The Federal Resource Conservation and Recovery Act (RCRA) regulation governs the handling, transportation, and disposal of hazardous materials. Every demolition/renovation debris generator has the responsibility to determine whether the debris exhibits one or more of the characteristic wastes listed in subpart C of 40 CFR Part 261. In the case of demolition debris, lead in LBP is a characteristic waste, and therefore, it is the responsibility of the renovation/demolition debris generator to characterize the waste prior to its disposal and, if found to be hazardous waste as defined by Federal Statutes, to be properly handled and disposed.

Metal objects painted with LBP are exempt from disposal regulations applicable to lead, provided they are properly recycled. All metal objects that are painted with LBP should be sent to a certified recycling facility.

This report is not Lead-based Paint abatement specification and should not be used for specifying removal methods or techniques.

4.2 XRF Information

Thermo Scientific Niton XLp 300A X-Ray Fluorescence (XRF), Heuresis Corp. Pb200i X-Ray Fluorescence (XRF) Analyzer(s) were used to survey the building/structure or portion thereof identified to be demolished, renovated, remodeled or repaired for the presence of LBP. The XRF analyzers are using a sealed source of XLp 300A X-Ray Fluorescence (XRF) Cd109 with 40mCi and the Pb200i X-Ray Fluorescence (XRF) Co 57 with 5mCi sources , meeting HUD requirements for the analysis of paint films. During the analysis, the intensity of the x-rays is converted by the instrument's internal software into an estimate of the concentration of lead in the substance being analyzed. The results are interpreted as concentrations of lead in milligrams per square centimeter. This device is a field-screening tool, used to collect multiple readings in a short period of time. The method of measurement is based on spectrometric analysis of lead x-ray fluorescence within a controlled depth of interrogation. The reading is an estimate of lead content in all layers of paint. The results are displayed in milligrams per square centimeter (mg/cm2). The device(s) used for this inspection were the Thermo Scientific Niton XLp 300A Analyzer(s), Serial number 90719, Source date 3/15/14, Serial number 102951, Source date 9/15/17 and/or Serial number 101094, Source date 2/15/17 Heuresis Corp. Pb200i X-Ray Fluorescence (XRF) Analyzer(s)Serial Number 2104, Source date 1/24/19, Serial number 2231, Source date 4/22/19.

5.0 PolyChlorinated Biphenyls (PCB)

5.1 Background and Protocol for PCBs

PolyChlorinated Biphenyls (PCB) are a group of manmade chemicals. PCBs were widely used in building materials and electrical products in the past. The U.S. Environmental Protection Agency banned the manufacturing and certain uses of PCBs in 1978, but buildings constructed or renovated between 1950 and 1978 may still have building materials and electrical products that contain PCBs. Examples of products that may contain PCBs include caulk, paint, glues, plastics, fluorescent lighting ballasts, transformers and capacitors.

PCBs are currently prohibited from being used in caulk and other commodities (U.S. EPA, 40 CFR 761). However, prior to 1977, PCBs were present in some caulking materials used in the construction of schools and other buildings. Studies have shown that concentrations of PCB can exceed 1% (10,000 ppm) by weight in some caulk materials. An investigation of 24 buildings in the Greater Boston Area revealed that one-third of the buildings tested (8 of 24) contained caulking materials with polychlorinated biphenyl (PCB) content exceeding 50 ppm by weight with an average concentration of 15,600 ppm or 1.5% (Herrick et al., 2004). These buildings included schools and other public buildings.

The U.S. EPA regulates the disposal of caulk, as well as soil and other materials contaminated with PCBs from caulk, if the concentration of PCBs exceeds 50 ppm. Such materials must be disposed at an appropriate approved or permitted facility.

U.S. EPA regulation 40 CFR 761 defines "PCB remediation waste" to include contaminated soil, and specifies a clean-up level of <1ppm without further conditions for unrestricted use in "high occupancy areas" (i.e., areas where individuals may be present for 335 hours or more per year). PCB caulk is defined as a PCB bulk product waste, and its disposal is subject to U.S. EPA regulations under the Toxic Substances Control Act (40 CFR761.62).

This protocol has been developed in consultation with the New York State Department of Health, Division of Environmental Health Assessment, Bureau of Toxic Substance Assessment to address concerns about properly managing caulk containing PCBs that will be disturbed during building renovation and maintenance.

CAULK SAMPLE COLLECTION

Buildings constructed or renovated between 1950 and 1977 have a potential to contain PCBs in existing caulk. Representative samples of caulking materials from these buildings prior to renovation or demolition work should be tested to determine whether the caulk is contaminated with PCBs. Professional judgement should be used to design the sampling plan for characterizing caulk throughout the building. The consultant should pay particular attention to construction and maintenance records and to the appearance of caulking materials (likenesses and differences). Samples should be taken from window frames or expansion joints that have not been repaired or replaced since 1977. Depending on specific information provided in the workplan developed by the project manager, such as window placement, compositing of some caulk samples might be appropriate. Caulk from different time periods or that have a different appearance should not be composited together.

It is important to note that caulk used during the time period of interest may also contain asbestos or lead. Therefore, the work plan should include testing, handling and disposal requirements appropriate for such regulated materials.

SOIL SAMPLE COLLECTION

Buildings constructed or renovated between 1950 and 1977, which have undergone further renovation after 1977, may have residual PCB contamination in adjacent soils. An adequate representation of surface soils should be tested to assess the potential for residual PCB contamination.

When designing a representative soil sampling plan, the likelihood of soil contamination from deteriorated or deteriorating caulk should be considered. Caulk that has in the past dried out and fallen to the ground is the most important source of soil contamination. Thus, sampling should include soil beneath windows where caulk has obviously deteriorated or been replaced because of previous deterioration. Areas subject to the stress of sun and prevailing weather (typically the southern and western side of each structure) should be included for sampling. These samples would provide a conservative evaluation of soil conditions due to an increased potential for material failure, possibly resulting in contamination of soil. Also, if earlier renovation or demolition work may have stockpiled potentially contaminated caulk in other school areas, the school should consider having soils in those areas tested as well.

Soil sampling should focus on areas of the building where ”banks” or “gangs” of windows exist/were replaced and areas of the structure where large expansion joints are located. This would provide a conservative evaluation of potential soil contamination and permit efficient sampling.

Any obvious pieces of caulk encountered during the collection of soil samples should be removed from the soil, categorized (with respect to location and depth) and treated as a separate potential sample.

Depth – At each soil sample location, soil should be collected in depth intervals of 0-2 inches, 2-6 inches and 6-12 inches. The surface soil sample (0-2 inches) should be collected from below the vegetative surface layer, if present.

Distance from Structure – Samples should be collected within 1 foot of the building and 5 feet from the building.

Samples should be collected in a manner that prevents cross-contamination. Augers or driven core samplers should be avoided, as any caulk caught on the edge of this type of tool could be driven to lower intervals. Using a designated trowel for each sample location and each interval of depth is encouraged. If the sampling tool is field cleaned between samples, do so in a manner that does not add solvent contamination to the environment.

NOTE
Sampling was performed by **Adelaide** in compliance with protocols outlined by New York State Education Department (NYSED) and USEPA 40 CFR 761, as described above. Only one sample per homogeneous area was required for analysis of suspect PCB-containing materials. Bulk sample(s) were properly packaged and forwarded, with associated Chain of Custody (COC), to York Analytical Laboratories, Inc., for analysis using method SW846-3550B/8082. The analysis will determine if the suspect material will be classified as PCB-containing at or above 50 ppm or mg/kg as per the EPA regulations. Copies of the analytical results are contained within attached appendices for review.

6.0 General Discussion

All construction personnel as well as individuals who have access to locations where asbestos-containing materials (ACM), lead-based paints (LBP) and/or polychlorinated biphenyls (PCB) 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.

7.0 Disclaimers

Adelaide certifies that the information contained within this report is based solely upon site observations and the results of laboratory analysis for samples collected during this survey/assessment. These observations and results are time dependent, subject to changing site conditions and revisions to Federal, State and Local regulations. **Adelaide** warrants that these findings have been promulgated after being prepared in general accordance with generally accepted practices in the abatement industries. **Adelaide** also recognizes that inspection laboratory data is not usually sufficient to make all abatement and management decisions. No other warranties are expressed or implied.

Due to the potential for concealed Asbestos-containing Materials (ACM) and/or other regulated materials, this report should not be construed to represent all ACM and/or regulated materials within the site(s). All quantities of ACM and/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 asbestos 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.

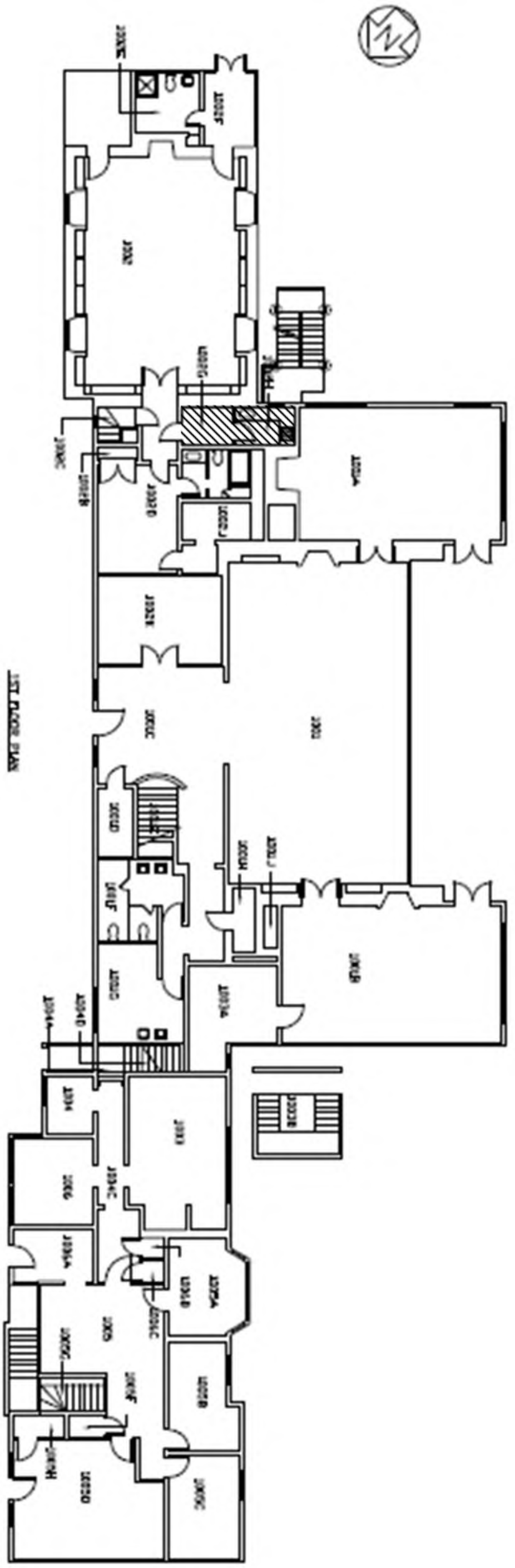
NYSDOH issued an Interim Guidance Letter, on July 9, 2013, which outlined the approved testing alternative for materials containing vermiculite. Specifically, "...Where TSI, surfacing materials, or other PACM or miscellaneous suspect ACM contain greater than 10% vermiculite, Item 198.6 may be used to evaluate the asbestos content of the material; provided, however, that any test results using this method must be reported with the following conspicuous disclaimer: *"This method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing greater than 10% vermiculite."* On July 22, 2014, NYSDOH issued a Regulatory Guidance Letter outlining the new approved analytical methods for testing sprayed-on fireproofing (SOFP) that contains vermiculite. NYSDOH authorized the use of ***two*** analytical methods to evaluate the asbestos content of SOFP that contains vermiculite. As per NYSDOH Guidelines, *"After October 31, 2014, one of the new methods **must** be used to test SOF-V, regardless of the percent of vermiculite."* On May 6, 2016, NYSDOH issued a Regulatory Guidance Letter outlining the new protocol for analytical procedure for surfacing materials (ie. plaster, stucco, etc.) that contain vermiculite. As per NYSDOH Guidelines, "*The original July 2013 and July 2014 letters addressed SOF-V only. Both NYS DOH's Item 198.8 and RJ Lee Group Method 055 shall now be applied to test for vermiculite in other Surfacing Material (SM) as defined in 12 NYCRR Part 56 (NYS Industrial Code Rule 56).*"

APPENDIX A

ACM LOCATION MAP(S)

First Floor Plan – ACM Locations

Drawing Not to Scale



ACM LEGEND: (see report for details)

Positive: Floor Flooring Layers

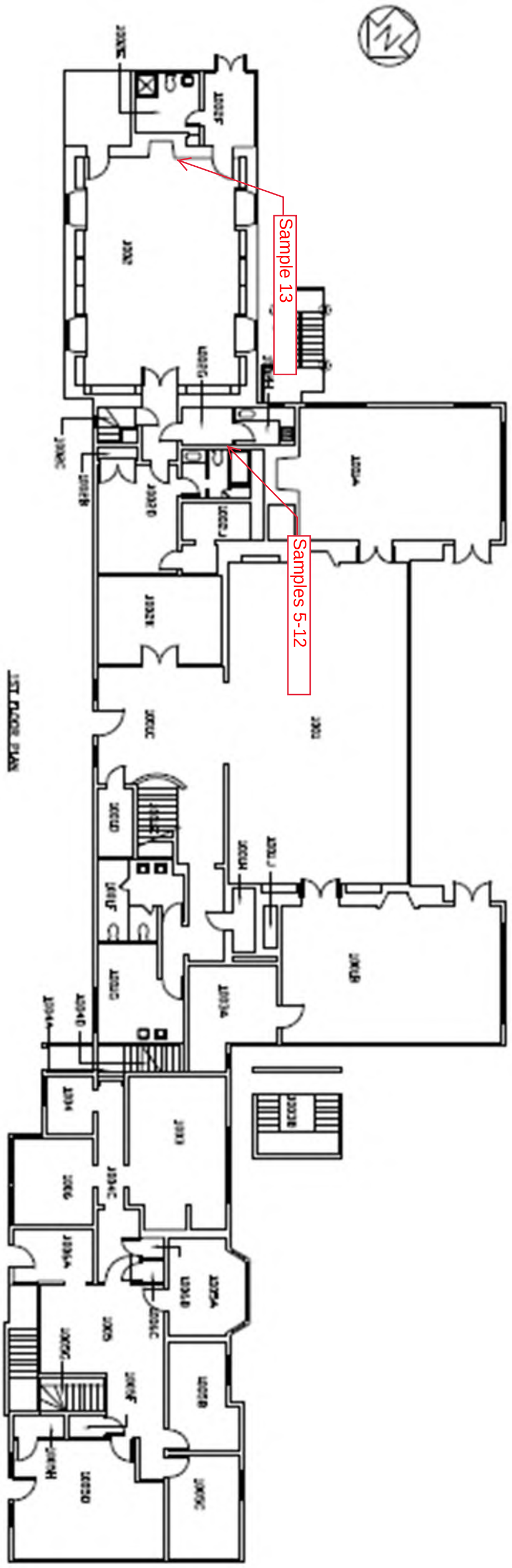
ASB -01	**Date:** 10/02/2019 **Version #** 1 **Issued For:** Limited Asbestos Survey **Adelaide Project NO.** KHA: 19242.00-IN **Drawing Prepared By:** David Seddon	Adelaide ENVIRONMENTAL HEALTH 1511 Route 22 Brewster , NY 10509 Phone: (845) 278-7710 Fax: (845) 278-7750	**Client Project No.** N/A	**SUNY Purchase** 735 Anderson Hill Road Purchase, New York 10577 **Kliment Halsband Architect** 322 Eighth Avenue New York, New York 10001

APPENDIX B

SAMPLE LOCATION MAP(S)

First Floor Plan - Sample Locations

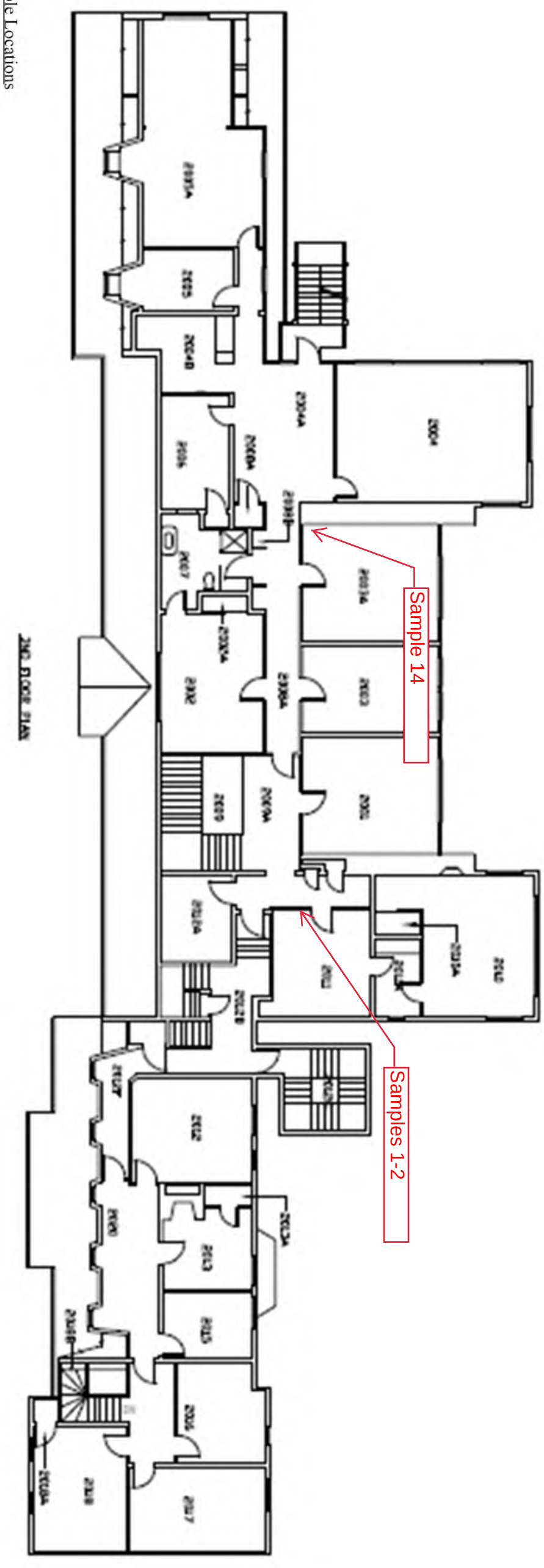
Drawing Not to Scale

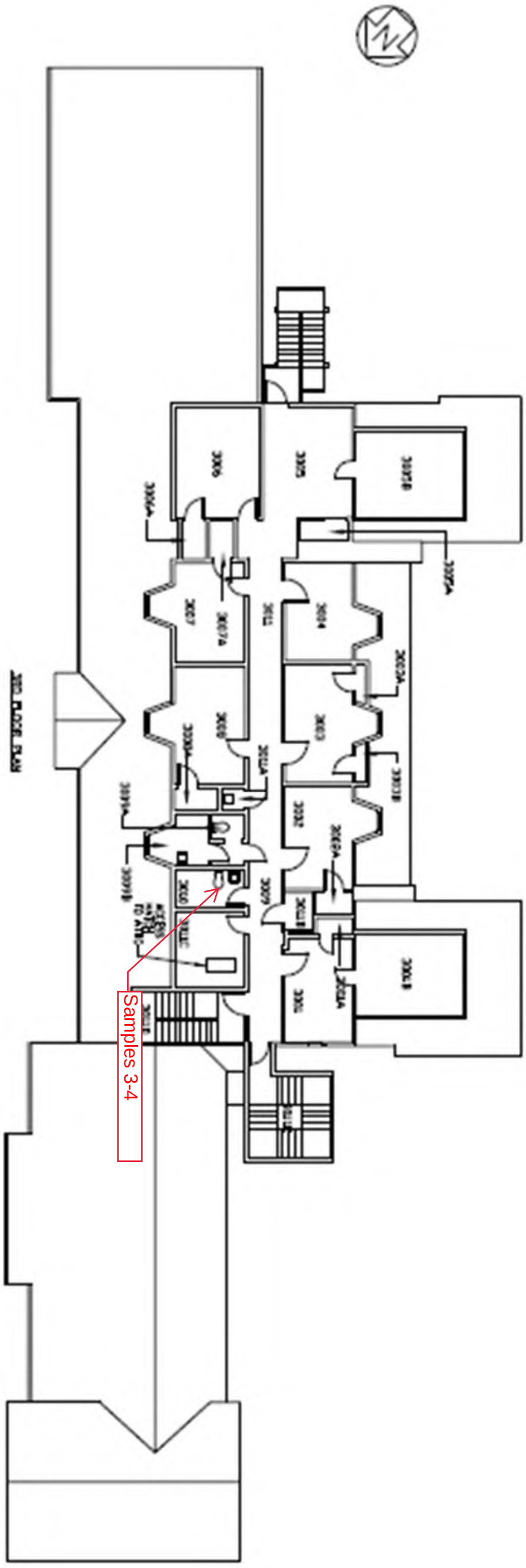


SLM -01	**Date:** 10/02/2019 **Version #** 1 **Issued For:** Limited Asbestos Survey **Adelaide Project NO.** KHA: 19242.00-IN **Drawing Prepared By:** David Seddon	Adelaide ENVIRONMENTAL HEALTH 1511 Route 22 Brewster , NY 10509 Phone: (845) 278-7710 Fax: (845) 278-7750	**Client Project No.** N/A	**SUNY Purchase** 735 Anderson Hill Road Purchase, New York 10577 **Kliment Halsband Architect** 322 Eighth Avenue New York, New York 10001

First Floor Plan - Sample Locations

Drawing Not to Scale





SLM -02	**Date:** 10/02/2019 **Version #** 1 **Issued For:** Limited Asbestos Survey **Adelaide Project NO.** KHA: 19242.00-IN **Drawing Prepared By:** David Seddon	Adelaide ENVIRONMENTAL HEALTH 1511 Route 22 Brewster , NY 10509 Phone: (845) 278-7710 Fax: (845) 278-7750	**Client Project No.** N/A	**SUNY Purchase** 735 Anderson Hill Road Purchase, New York 10577 **Kliment Halsband Architect** 322 Eighth Avenue New York, New York 10001

APPENDIX C

ASBESTOS ANALYTICAL RESULTS

Table I
Summary of Bulk Asbestos Analysis Results

RHA 19242.00-IN; SUNY Purchase; 735 Anderson Hill Rd., Purchase, NY 10577

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
01	1	1	0.118	69.5	9.3	21.2	NAD	NAD
Location:	2nd Floor - Space 2011 - Carpet Adhesive							
02	2	1	0.122	70.5	6.6	23.0	NAD	NAD
Location:	2nd Floor - Space 2011 - Carpet Adhesive							
03	3	2	0.242	56.2	30.2	13.6	NAD	NAD
Location:	3rd Floor - Space 3009 - Sheet Flooring							
04	4	2	0.208	59.1	29.3	11.5	NAD	NAD
Location:	3rd Floor - Space 3009 - Sheet Flooring							
05	5	3	0.352	46.0	28.7	25.3	NAD	NAD
Location:	1st Floor - Space 1002H - Sheet Flooring - Black & White							
06	6	3	0.272	45.2	28.7	26.1	NAD	NAD
Location:	1st Floor - Space 1002H - Sheet Flooring - Black & White							
07	7	4	0.295	23.4	60.0	15.0	Chrysotile 1.6	NA
Location:	1st Floor - Space 1002H - 2nd Layer - Tile W/ Mastic (Composite)							
08	8	4	0.285	23.2	60.7	16.1	NA/PS	NA
Location:	1st Floor - Space 1002H - 2nd Layer - Tile W/ Mastic (Composite)							
09	9	5	0.250	23.2	59.6	15.6	Chrysotile 1.6	NA
Location:	1st Floor - Space 1002H - 3rd Layer - Tile							
10	10	5	0.283	23.3	62.9	13.8	NA/PS	NA
Location:	1st Floor - Space 1002H - 3rd Layer - Tile							
11	11	6	0.222	22.5	59.9	15.9	Chrysotile 1.7	NA
Location:	1st Floor - Space 1002H - Bottom Layer							
12	12	6	0.221	26.7	44.8	28.5	NA/PS	NA
Location:	1st Floor - Space 1002H - Bottom Layer							
13	13	7	----	----	----	----	NAD	NA
Location:	1st Floor - Space 1002 - Barrier Under Wood Floor							
14	14	7	----	----	----	----	NAD	NA
Location:	2nd Floor - Space 2003A - Barrier Under Wood Floor							

See Reporting notes on last page

Table I
Summary of Bulk Asbestos Analysis Results

RHA 19242.00-IN; SUNY Purchase; 735 Anderson Hill Rd., Purchase, NY 10577

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM

Analyzed by: John P. Koubiadis; Date Analyzed 9/25/2019

**Quantitative Analysis (Semi/Full): Bulk Asbestos Analysis - PLM by Appd E to Subpt E, 40 CFR 763 or ELAP 198.1 for New York friable samples or ELAP 198.6 for New York NOB samples; TEM (Semi/Full) by EPA 600/R-93/116 (or ELAP 198.4; for New York samples; NAD = no asbestos detected during a quantitative analysis; NA = not analyzed; Trace = <1%; (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; Quantitation for beginning weights of <0.1 grams should be considered as qualitative only; Qualitative Analysis: Asbestos analysis results of "Present" or "NVA = No Visible Asbestos" represents results for Qualitative PLM or TEM Analysis only (no accreditation coverage available from any regulatory agency for qualitative analyses): NVLAP (PLM) 200546-0, NYSDOH ELAP Lab 11480, AIHA-LAP, LLC (PLM) Lab ID 102843.

Warning Note: PLM limitation, only TEM will resolve fibers <0.25 micrometers in diameter. TEM bulk analysis is representative of the fine grained matrix material and may not be representative of non-uniformly dispersed debris for which PLM evaluation is recommended (i.e. soils and other heterogenous materials).

Reviewed By:

AmeriSci New York
117 EAST 30TH ST.
NEW YORK, NY 10016
TEL: (212) 679-8600 • FAX: (212) 679-3114

PLM Bulk Asbestos Report

Adelaide Environmental Health
Attn: John Soter
1511 Rte. 22 Suite C24

Brewster, NY 10509

Date Received 09/24/19 **AmeriSci Job #** 219093483
Date Examined 09/24/19 **P.O. #**
ELAP # 11480 **Page** 1 **of** 3
RE: RHA 19242.00-IN; SUNY Purchase; 735 Anderson Hill Rd., Purchase, NY 10577

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
1 1	219093483-01 **Location:** 2nd Floor - Space 2011 - Carpet Adhesive	***No***	NAD [1] (by NYS ELAP 198.6) by Khaalid W. Perine on 09/24/19
Analyst Description: Yellow, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 21.2 %			
2 1	219093483-02 **Location:** 2nd Floor - Space 2011 - Carpet Adhesive	***No***	NAD (by NYS ELAP 198.6) by Khaalid W. Perine on 09/24/19
Analyst Description: Yellow, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 23 %			
3 2	219093483-03 **Location:** 3rd Floor - Space 3009 - Sheet Flooring	***No***	NAD (by NYS ELAP 198.6) by Khaalid W. Perine on 09/24/19
Analyst Description: OffWhite/Brown, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 13.6 %			
4 2	219093483-04 **Location:** 3rd Floor - Space 3009 - Sheet Flooring	***No***	NAD (by NYS ELAP 198.6) by Khaalid W. Perine on 09/24/19
Analyst Description: OffWhite/Brown, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 11.5 %			
5 3	219093483-05 **Location:** 1st Floor - Space 1002H - Sheet Flooring - Black & White	***No***	NAD (by NYS ELAP 198.6) by Khaalid W. Perine on 09/24/19
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 25.3 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

RHA 19242.00-IN; SUNY Purchase; 735 Anderson Hill Rd., Purchase, NY 10577

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
6 3	219093483-06 **Location:** 1st Floor - Space 1002H - Sheet Flooring - Black & White	***No***	NAD (by NYS ELAP 198.6) by Khaalid W. Perine on 09/24/19
	Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 26.1 %		
7 4	219093483-07 **Location:** 1st Floor - Space 1002H - 2nd Layer - Tile W/ Mastic (Composite)	***Yes***	1.6 % [2] (EPA 400 PC) by Khaalid W. Perine on 09/24/19
	Analyst Description: White/Tan, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 1.6 % **Other Material:** Non-fibrous 15 %		
8 4	219093483-08 **Location:** 1st Floor - Space 1002H - 2nd Layer - Tile W/ Mastic (Composite)		NA/PS
	Analyst Description: Bulk Material **Asbestos Types:** **Other Material:**		
9 5	219093483-09 **Location:** 1st Floor - Space 1002H - 3rd Layer - Tile	***Yes***	1.6 % [2] (EPA 400 PC) by Khaalid W. Perine on 09/24/19
	Analyst Description: White, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 1.6 % **Other Material:** Non-fibrous 15.6 %		
10 5	219093483-10 **Location:** 1st Floor - Space 1002H - 3rd Layer - Tile		NA/PS
	Analyst Description: Bulk Material **Asbestos Types:** **Other Material:**		
11 6	219093483-11 **Location:** 1st Floor - Space 1002H - Bottom Layer	***Yes***	1.7 % [2] (EPA 400 PC) by Khaalid W. Perine on 09/24/19
	Analyst Description: Brown, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 1.7 % **Other Material:** Non-fibrous 15.9 %		

See Reporting notes on last page

PLM Bulk Asbestos Report

RHA 19242.00-IN; SUNY Purchase; 735 Anderson Hill Rd.,
Purchase, NY 10577

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
12 6	219093483-12 **Location:** 1st Floor - Space 1002H - Bottom Layer		NA/PS
	Analyst Description: Bulk Material **Asbestos Types:** **Other Material:**		
13 7	219093483-13 **Location:** 1st Floor - Space 1002 - Barrier Under Wood Floor	***No***	NAD (by NYS ELAP 198.1) by Khaalid W. Perine on 09/24/19
	Analyst Description: Grey/Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Animal hair 6 %, Cellulose 93 %, Non-fibrous 1 %		
14 7	219093483-14 **Location:** 2nd Floor - Space 2003A - Barrier Under Wood Floor	***No***	NAD (by NYS ELAP 198.1) by Khaalid W. Perine on 09/24/19
	Analyst Description: Grey/Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Animal hair 7 %, Cellulose 92 %, Synthetic fibers Trace, Non-fibrous 1 %		

Reporting Notes:

(1) This job was - Analyzed using Nikon Labophot Pol Scope S/N 954314

(2) Sample prepared for analysis by ELAP 198.6 method

Analyzed by: Khaalid W. Perine _____

*NAD/NSD =no asbestos detected; NA =not analyzed; NA/PS=not analyzed/positive stop, (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; PLM Bulk Asbestos Analysis by Appd E to Subpt E, 40 CFR 763 (NVLAP 200546-0), ELAP PLM Method 198.1 for NY friable samples, which includes the identification and quantitation of vermiculite or 198.6 for NOB samples or EPA 400 pt ct by Appd E to Subpt E, 40 CFR 763 (NY ELAP Lab 11480); Note:PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. NAD or Trace results by PLM are inconclusive, TEM is currently the only method that can be used to determine if this material can be considered or treated as non asbestos-containing in NY State (also see EPA Advisory for floor tile, FR 59,146,38970,8/1/94) National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the lab.This PLM report relates ONLY to the items tested. AIHA-LAP, LLC Lab ID 102843, RI Cert AAL-094, CT Cert PH-0186, Mass Cert AA000054.

Reviewed By:_____ _____END OF REPORT_____

Adelaide Environmental Health Associates, Inc
1454 Rte. 22, Suite B202
Brewster, NY 10509
845-278-7710
845-278-7750 - fax

#219093483

Site Address: SUNY Purchase (Admin) 735 Anderson Hill Rd Purchase, NY 10577	Date: 9/19/19	Inspector(s) David Seddon
	Project #: KHA 19242.00-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
1	1	2	SPACE 2011 - CARPET ADHESIVE			G
2	1	2	" - " "			"
3	2	3	3009 - SHEET FLOORING			"
4	2	3	" - "			"
5	3	1st	1002H - SHEET FLOORING - BLACK & WHITE			"
6	3	"	" - " - "			"
7	4	"	" - 2nd LAYER - TILE W/ MASTIC (COMPOSITE)			"
8	4	"	" - " - " "			"
9	5	"	" - 3rd LAYER - TILE			"
10	5	"	" - " - "			"
11	6	"	" - BOTTOM LAYER			"
12	6	B	" - "			P

Special Instructions/ Turnaround Time:

24 Hrs
TAT

Stop at 1st Positive per Homogenous Area
Fax Results to 845-278-7750
E-Mail results to AdelaideLabResults@Adelaidellc.com

Relinquished by:
Received by:
1132 9/24/2019
Relinquished by:
Received by:

Adelaide Environmental Health Associates, Inc
1454 Rte. 22, Suite B202
Brewster, NY 10509
845-278-7710
845-278-7750 - fax

#219093483

Site Address: SUNY Purchase (Admin)	Date: 9/19/19	Inspector(s) David Seddon
	Project #: KHA 19242.00-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
13	7	1	Space 1002 - Barrier under Wood Floor			G
14	7	2	2003A - " "			"

Special Instructions/ Turnaround Time:

24 Hrs
TAT

Stop at 1st Positive per Homogenous Area
Fax Results to 845-278-7750
E-Mail results to AdelaideLabResults@Adelaidellc.com

Relinquished by:
Received by:
Relinquished by: 9/24/19 1132
Received by:

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EMSL Order: 061602991
CustomerID: ADEL50
CustomerPO:
ProjectID:

Attn: **Adelaide Associates, LLC**
1511 Route 22
Suite C-24
Brewster, NY 10509

Phone: (845) 278-7710
Fax: (845) 278-7750
Received: 03/28/16 9:27 AM
Analysis Date: 4/3/2016
Collected: 3/23/2016

Project: **SUNY Purchase, 735 Anderson Hill Road, Purchase, NY 10577, Project #: PGS:15100.02-IN**

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID 1-1 *061602991-0001*		**Description** Bsmt., Admin., Tar Paper behind Wood **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Black			**<1% Anthophyllite** **<1% Total**
Sample ID 1-2 *061602991-0002*		**Description** Bsmt., Admin., Tar Paper behind Wood **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Black			**<1% Anthophyllite** **<1% Total**
Sample ID 2-3 *061602991-0003*		**Description** Bsmt., Admin., Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2-4 *061602991-0004*		**Description** Bsmt., Admin., Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2-5 *061602991-0005*		**Description** Bsmt., Admin., Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 2-6 *061602991-0006*		**Description** Bsmt., Admin., Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2-7 *061602991-0007*		**Description** Bsmt., Admin., Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2-8 *061602991-0008*		**Description** Bsmt., Admin., Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2-9 *061602991-0009*		**Description** Bsmt., Admin., Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 3-10 *061602991-0010*		**Description** Bsmt., Admin., Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	Brown		98.52% Non-fibrous (other)	**1.48% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 3-11 *061602991-0011*		**Description** Bsmt., Admin., Wall Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 3-12 *061602991-0012*		**Description** Bsmt., Admin., Wall Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 3-13 *061602991-0013*		**Description** Bsmt., Admin., Wall Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 3-14 *061602991-0014*		**Description** Bsmt., Admin., Wall Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 3-15 *061602991-0015*		**Description** Bsmt., Admin., Wall Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 3-16 *061602991-0016*		**Description** Bsmt., Admin., Wall Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 4-17 *061602991-0017*		**Description** Bsmt., Admin., Ceiling Plaster,Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 4-18 *061602991-0018*		**Description** Bsmt., Admin., Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 4-19 *061602991-0019*		**Description** Bsmt., Admin., Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 4-20 *061602991-0020*		**Description** Bsmt., Admin., Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 4-21 *061602991-0021*		**Description** Bsmt., Admin., Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 4-22 *061602991-0022*		**Description** Bsmt., Admin., Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 4-23 *061602991-0023*		**Description** Bsmt., Admin., Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 5-24 *061602991-0024*		**Description** Bsmt., Admin., Ceiling Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	Brown		98.46% Non-fibrous (other)	**1.54% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 5-25 *061602991-0025*		**Description** Bsmt., Admin., Ceiling Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 5-26 *061602991-0026*		**Description** Bsmt., Admin., Ceiling Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 5-27 *061602991-0027*		**Description** Bsmt., Admin., Ceiling Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 5-28 *061602991-0028*		**Description** Bsmt., Admin., Ceiling Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 5-29 *061602991-0029*		**Description** Bsmt., Admin., Ceiling Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID 5-30 *061602991-0030*		**Description** Bsmt., Admin., Ceiling Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 6-31 *061602991-0031*		**Description** Bsmt., Admin., 0012, Stair Covering **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Gray/Black			**None Detected**
Sample ID 6-32 *061602991-0032*		**Description** Bsmt., Admin., 0012, Stair Covering **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Gray/Black			**None Detected**
Sample ID 7-33 *061602991-0033*		**Description** Bsmt., Admin., 0008, Flue Sealant **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/2/2016	Gray/Rust	4.00% Wollastonite	96.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 7-34 *061602991-0034*		**Description** Bsmt., Admin., 0008, Flue Sealant **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	4/2/2016	Gray/Rust	5.00% Glass 6.00% Wollastonite	89.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 8-35 *061602991-0035*		**Description** Bsmt., Admin., 0001, Stone Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	Gray		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 8-36 *061602991-0036*		**Description** Bsmt., Admin., 0001, Stone Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	Gray		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 9-37 *061602991-0037*		**Description** Bsmt., Admin., 0007, Drywall **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White	8.00% Cellulose	92.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 9-38 *061602991-0038*		**Description** Bsmt., Admin., 0007, Drywall **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White	6.00% Cellulose	94.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 10-39 *081602991-0039*		**Description** Bsmt., Admin., 0007, Joint Compound **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	Tan		97.89% Non-fibrous (other)	**2.11% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 10-40 *061602991-0040*		**Description** Bsmt., Admin., 0007, Joint Compound **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 11-41 *061602991-0041*		**Description** Bsmt., Admin., 0010, Red Fire-Stop **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Red	1.3% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Red			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 11-42 *061602991-0042*		**Description** Bsmt., Admin., 0010, Red Fire-Stop **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Red	1.3% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Red			**None Detected**
Sample ID 12-43 *061602991-0043*		**Description** Bsmt., Admin., 0009, Ceramic Floor Grout **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	Gray		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 12-44 *061602991-0044*		**Description** Bsmt., Admin., 0009, Ceramic Floor Grout **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	Gray		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 13-45 *061602991-0045*		**Description** Bsmt., Admin., 0009, Concrete **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	Gray		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 13-46 *061602991-0046*		**Description** Bsmt., Admin., 0009, Concrete **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	Gray		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 14-47 *061602991-0047*		**Description** Bsmt., Admin., 0004, Black Wall Mastic **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Black			**None Detected**

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EMSL Order: 061602991
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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 14-48 *061602991-0048*		**Description** Bsmt., Admin., 0004, Black Wall Mastic **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Black			**None Detected**
Sample ID 15-49 *061602991-0049*		**Description** Bsmt., Admin., 0004, Material behind Heat Shield **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	White		50.00% Non-fibrous (other)	**50.00% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 15-50 *061602991-0050*		**Description** Bsmt., Admin., 0004, Material behind Heat Shield **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 15-51 *061602991-0051*		**Description** Bsmt., Admin., 0004, Material behind Heat Shield **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 16-52 *061602991-0052*		**Description** Bsmt., Admin., 0004, Pipe Insul. Debris **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	Tan		80.90% Non-fibrous (other)	**19.10% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 16-53 *061602991-0053*		**Description** Bsmt., Admin., 0004, Pipe Insul. Debris **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 16-54 *061602991-0054*		**Description** Bsmt., Admin., 0004, Pipe Insul. Debris **Homogeneity**			
PLM NYS 198.1 Friable	4/3/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 17-55 *061602991-0055*		**Description** Bsmt., Admin., 0004, Brick Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	Gray		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 17-56 *061602991-0056*		**Description** Bsmt., Admin., 0004, Brick Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/3/2016	Gray		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 18-57 *061602991-0057*		**Description** Bsmt., Admin., 0004, Fireplace Stone Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 18-58 *061602991-0058*		**Description** Bsmt., Admin., 0004, Fireplace Stone Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 19-59 *061602991-0059*		**Description** Bsmt., Admin., 0004, Fireplace Fire Brick Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test			Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID	19-60		**Description**	Bsmt., Admin., 0004, Fireplace Fire Brick Mortar		
	061602991-0060		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	20-61		**Description**	Bsmt., Admin., 0004, Fireplace Fire Brick		
	061602991-0061		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	20-62		**Description**	Bsmt., Admin., 0004, Fireplace Fire Brick		
	061602991-0062		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	21-63		**Description**	1st Fl., Admin., 1005, Black Border Tile		
	061602991-0063		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/3/2016	Black			**None Detected**
Sample ID	21-64		**Description**	1st Fl., Admin., 1005, Black Border Tile		
	061602991-0064		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/3/2016	Black			**None Detected**
Sample ID	22-65		**Description**	1st Fl., Admin., 1005, Tan w./ Swirls F.T.		
	061602991-0065		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Tan			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/3/2016	Tan			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous / Non-Fibrous	Asbestos
Sample ID 22-66		**Description**	1st Fl., Admin., 1005, Tan w./ Swirls F.T.	
061602991-0066		**Homogeneity**	Heterogeneous	
PLM NYS 198.1 Friable				**Not Analyzed**
PLM NYS 198.6 VCM				**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Tan/Black		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Tan/Black		**None Detected**
Sample ID 23-67		**Description**	1st Fl., Admin., 1005, Black Mastic/Felt	
061602991-0067		**Homogeneity**	Heterogeneous	
PLM NYS 198.1 Friable				**Not Analyzed**
PLM NYS 198.6 VCM				**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Black		**None Detected**
Sample ID 23-68		**Description**	1st Fl., Admin., 1005, Black Mastic/Felt	
061602991-0068		**Homogeneity**	Heterogeneous	
PLM NYS 198.1 Friable				**Not Analyzed**
PLM NYS 198.6 VCM				**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Black		**None Detected**
Sample ID 24-69		**Description**	1st Fl., Admin., 1005C, Beige Flooring and Felt	
061602991-0069		**Homogeneity**	Heterogeneous	
PLM NYS 198.1 Friable				**Not Analyzed**
PLM NYS 198.6 VCM				**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Tan		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Brown/Tan		**None Detected**
Sample ID 24-70		**Description**	1st Fl., Admin., 1005C, Beige Flooring and Felt	
061602991-0070		**Homogeneity**	Heterogeneous	
PLM NYS 198.1 Friable				**Not Analyzed**
PLM NYS 198.6 VCM				**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Tan		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Brown/Tan		**None Detected**
Sample ID 25-71		**Description**	1st Fl., Admin., 1005C, Black Mastic/Felt	
061602991-0071		**Homogeneity**	Heterogeneous	
PLM NYS 198.1 Friable				**Not Analyzed**
PLM NYS 198.6 VCM				**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Black		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Brown/Black		**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous / Non-Fibrous	Asbestos
Sample ID 25-72 *061602991-0072*		**Description** 1st Fl., Admin., 1005C, Black Mastic/Felt **Homogeneity** Heterogeneous		
PLM NYS 198.1 Friable				**Not Analyzed**
PLM NYS 198.6 VCM				**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Black/ Green		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Brown/Black/ Green		**None Detected**
Sample ID 26-73 *061602991-0073*		**Description** 1st Fl., Admin., 1005B, Small Black and Brown Flooring **Homogeneity** Heterogeneous		
PLM NYS 198.1 Friable				**Not Analyzed**
PLM NYS 198.6 VCM				**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Tan/G reen		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Brown/Tan/G reen		**None Detected**
Sample ID 26-74 *061602991-0074*		**Description** 1st Fl., Admin., 1005B, Small Black and Brown Flooring **Homogeneity** Heterogeneous		
PLM NYS 198.1 Friable				**Not Analyzed**
PLM NYS 198.6 VCM				**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Tan/G reen		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/3/2016	Brown/Tan/G reen		**None Detected**
Sample ID 27-75 *061602991-0075*		**Description** 1st Fl., Admin., 1005D, Black Flooring on Concrete **Homogeneity** Heterogeneous		
PLM NYS 198.1 Friable				**Not Analyzed**
PLM NYS 198.6 VCM				**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Black		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Brown/Black		**None Detected**
Sample ID 27-76 *061602991-0076*		**Description** 1st Fl., Admin., 1005D, Black Flooring on Concrete **Homogeneity** Heterogeneous		
PLM NYS 198.1 Friable				**Not Analyzed**
PLM NYS 198.6 VCM				**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Black		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Brown/Black		**None Detected**
Sample ID 28-77 *061602991-0077*		**Description** 1st Fl., Admin., 1005D, 12"x12" Beige F.T. **Homogeneity** Homogeneous		
PLM NYS 198.1 Friable				**Not Analyzed**
PLM NYS 198.6 VCM				**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/Tan		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Gray/Tan		**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 28-78 *061602991-0078*		**Description** 1st Fl., Admin., 1005D, 12"x12" Beige F.T. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/Tan			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Gray/Tan			**None Detected**
Sample ID 29-79A *061602991-0079*		**Description** 1st Fl., Admin., 1006C, Beige w./ Brown Streaks F.T. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Tan/ White			**Inconclusive : <1%Chrysotile** **Inconclusive - <1% Total**
One of two sample bags marked 79. Labelled A for ID purposes.					
TEM NYS 198.4 NOB	4/4/2016	Brown/Tan/ White			**<1% Chrysotile** **<1% Total**
Sample ID 29-79B *061602991-0079A*		**Description** 1st Fl., Admin., 1006C, Beige w./ Brown Streaks F.T. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Gray/ Tan			**Inconclusive : <1%Chrysotile** **Inconclusive - <1% Total**
One of two sample bags marked 79. Labelled B for ID purposes.					
TEM NYS 198.4 NOB	4/4/2016	Brown/Gray/ Tan			**<1% Chrysotile** **<1% Total**
Sample ID 29-80A *061602991-0080*		**Description** 1st Fl., Admin., 1006C, Beige w./ Brown Streaks F.T. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Tan/ White			**Inconclusive : <1%Chrysotile** **Inconclusive - <1% Total**
One of two sample bags marked 80. Labelled A for ID purposes.					
TEM NYS 198.4 NOB	4/4/2016	Brown/Tan/ White			**<1% Chrysotile** **<1% Total**

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Test Report:Asbestos Analysis of Bulk Material

Test			Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID	29-80B		**Description**	1st Fl., Admin., 1006C, Beige w./ Brown Streaks F.T.		
	061602991-0080A		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Brown/Gray/ Tan			**Inconclusive : <1%Chrysotile** **Inconclusive - <1% Total**
One of two sample bags marked 80. Labelled B for ID purposes.						
TEM NYS 198.4 NOB		4/4/2016	Brown/Gray/ Tan			**<1% Chrysotile** **<1% Total**
Sample ID	30-81		**Description**	1st Fl., Admin., 1006, 12"x12" Gray F.T.		
	061602991-0081		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Gray			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Gray			**None Detected**
Sample ID	30-82		**Description**	1st Fl., Admin., 1006, 12"x12" Gray F.T.		
	061602991-0082		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Gray			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Gray			**None Detected**
Sample ID	31-83		**Description**	1st Fl., Admin., 1006, 12"x12" White F.T.		
	061602991-0083		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	White			**None Detected**
Sample ID	31-84		**Description**	1st Fl., Admin., 1006, 12"x12" White F.T.		
	061602991-0084		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	White			**None Detected**
Sample ID	32-85		**Description**	1st Fl., Admin., 1006, 12"x12" White F.T.		
	061602991-0085		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	White			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 32-86 *061602991-0086*		**Description** 1st Fl., Admin., 1006, 12"x12" White F.T. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	White			**None Detected**
Sample ID 33-87 *061602991-0087*		**Description** 1st Fl., Admin., 1004, 12"x12" Black F.T. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Black			**None Detected**
Sample ID 33-88 *061602991-0088*		**Description** 1st Fl., Admin., 1004, 12"x12" Black F.T. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Black			**None Detected**
Sample ID 34-89 *061602991-0089*		**Description** 1st Fl., Admin., 1004, 4" Vinyl Covebase and Mastic **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black/Clear			**Inconclusive: None Detected**
Composite of cove base and inseparable clear adhesive.					
TEM NYS 198.4 NOB	4/4/2016	Black/Clear			**None Detected**
Sample ID 34-90 *061602991-0090*		**Description** 1st Fl., Admin., 1004, 4" Vinyl Covebase and Mastic **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black/Clear			**Inconclusive: None Detected**
Composite of cove base and inseparable clear adhesive.					
TEM NYS 198.4 NOB	4/4/2016	Black/Clear			**None Detected**
Sample ID 35-91 *061602991-0091*		**Description** 1st Fl., Admin., 1004C, Textured Ceiling **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 35-92 *061602991-0092*		**Description** 1st Fl., Admin., 1004C, Textured Ceiling **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 35-93 *061602991-0093*		**Description** 1st Fl., Admin., 1004C, Textured Ceiling **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 35-94 *061602991-0094*		**Description** 1st Fl., Admin., 1004C, Textured Ceiling **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 35-95 *061602991-0095*		**Description** 1st Fl., Admin., 1004C, Textured Ceiling **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 36-96 *061602991-0096*		**Description** 1st Fl., Admin., 1006A, Ceramic Grout **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 36-97 *061602991-0097*		**Description** 1st Fl., Admin., 1006A, Ceramic Grout **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 37-98 *061602991-0098*		**Description** 2nd Fl., Admin., 2012F Closet, 12"x12" Beige F.T. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Gray/ Tan			**Inconclusive : <1%Chrysotile** **Inconclusive - <1% Total**
TEM NYS 198.4 NOB	4/4/2016	Brown/Gray/ Tan			**<1% Chrysotile** **<1% Total**
Sample ID 37-99 *061602991-0099*		**Description** 2nd Fl., Admin., 2012F Closet, 12"x12" Beige F.T. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Gray/ Tan			**Inconclusive : <1%Chrysotile** **Inconclusive - <1% Total**
TEM NYS 198.4 NOB	4/4/2016	Brown/Gray/ Tan			**<1% Chrysotile** **<1% Total**
Sample ID 38-100 *061602991-0100*		**Description** 2nd Fl., Admin., 2012F Closet, Brown Floor Mastic **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Brown/Black			**None Detected**
Sample ID 38-101 *061602991-0101*		**Description** 2nd Fl., Admin., 2012F Closet, Brown Floor Mastic **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Brown/Black			**None Detected**
Sample ID 39-102 *061602991-0102*		**Description** 2nd Fl., Admin., 2011A, 12"x12" Gray F.T. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Gray			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test			Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID	39-103		**Description**	2nd Fl., Admin., 2011A, 12"x12" Gray F.T.		
	061602991-0103		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Gray			**Inconclusive: None Detected**
Sample bag contains a small piece of black floor tile which wasn't analyzed.						
TEM NYS 198.4 NOB		4/4/2016	Gray			**None Detected**
Sample ID	40-104		**Description**	1st Fl., Admin., 1001A, 9"x9" Ceramic Mortar		
	061602991-0104		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Black		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	40-105		**Description**	1st Fl., Admin., 1001A, 9"x9" Ceramic Mortar		
	061602991-0105		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Black		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	41-106		**Description**	3rd Fl., H.R., 3002, Wall Plaster, Top Coat		
	061602991-0106		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	41-107		**Description**	3rd Fl., H.R., 3002, Wall Plaster, Top Coat		
	061602991-0107		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	41-108		**Description**	3rd Fl., H.R., 3002, Wall Plaster, Top Coat		
	061602991-0108		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 41-109 *061602991-0109*		**Description** 3rd Fl., H.R., 3002, Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 41-110 *061602991-0110*		**Description** 3rd Fl., H.R., 3002, Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 41-111 *061602991-0111*		**Description** 3rd Fl., H.R., 3002, Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 41-112 *061602991-0112*		**Description** 3rd Fl., H.R., 3002, Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 42-113 *061602991-0113*		**Description** 3rd Fl., H.R., 3002, Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 42-114 *061602991-0114*		**Description** 3rd Fl., H.R., 3002, Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 42-115 *061602991-0115*		**Description** 3rd Fl., H.R., 3002, Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		99.40% Non-fibrous (other)	**0.60% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 42-116 *061602991-0116*		**Description** 3rd Fl., H.R., 3002, Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		99.33% Non-fibrous (other)	**0.67% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 42-117 *061602991-0117*		**Description** 3rd Fl., H.R., 3002, Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		99.41% Non-fibrous (other)	**0.59% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 42-118 *061602991-0118*		**Description** 3rd Fl., H.R., 3002, Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		99.72% Non-fibrous (other)	**0.28% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 42-119 *061602991-0119*		**Description** 3rd Fl., H.R., 3002, Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 43-120 *061602991-0120*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 43-121 *061602991-0121*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 43-122 *061602991-0122*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 43-123 *061602991-0123*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 43-124 *061602991-0124*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 43-125 *061602991-0125*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 43-126 *061602991-0126*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID 44-127 *061602991-0127*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 44-128 *061602991-0128*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 44-129 *061602991-0129*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		99.73% Non-fibrous (other)	**0.27% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 44-130 *061602991-0130*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 44-131 *061602991-0131*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		99.40% Non-fibrous (other)	**0.60% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 44-132 *061602991-0132*		**Description** 3rd Fl., H.R., 3002, Ceiling Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		99.36% Non-fibrous (other)	**0.64% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test		Color	Fibrous	Non-Fibrous	Non Asbestos	Asbestos
Sample ID 44-133		**Description**	3rd Fl., H.R., 3002, Ceiling Plaster, Base Coat			
061602991-0133		**Homogeneity**	Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Brown		99.72% Non-fibrous (other)		**0.28% Chrysotile**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID 45-134		**Description**	3rd Fl., H.R., 3003, Multi-Colored Linoleum			
061602991-0134		**Homogeneity**	Heterogeneous			
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Gray				**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Brown/Gray				**None Detected**
Sample ID 45-135		**Description**	3rd Fl., H.R., 3003, Multi-Colored Linoleum			
061602991-0135		**Homogeneity**	Heterogeneous			
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Gray				**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Brown/Gray				**None Detected**
Sample ID 46-136		**Description**	3rd Fl., H.R., 3003, 2nd Layer Flooring			
061602991-0136		**Homogeneity**	Heterogeneous			
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Tan/Black				**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Tan/Black				**None Detected**
Sample ID 46-137		**Description**	3rd Fl., H.R., 3003, 2nd Layer Flooring			
061602991-0137		**Homogeneity**	Heterogeneous			
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Tan/Black				**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Tan/Black				**None Detected**
Sample ID 47-138		**Description**	2nd Fl., H.R., 2005, 12"x12" Gray F.T.			
061602991-0136		**Homogeneity**	Homogeneous			
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray				**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Gray				**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 47-139		**Description**	2nd Fl., H.R., 2005, 12"x12" Gray F.T.		
061602991-0139		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Gray			**None Detected**
Sample ID 48-140		**Description**	2nd Fl., H.R., 2005, 12"x12" White F.T.		
061602991-0140		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Tan/White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Tan/White			**None Detected**
Sample ID 48-141		**Description**	2nd Fl., H.R., 2005, 12"x12" White F.T.		
061602991-0141		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Tan/White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Tan/White			**None Detected**
Sample ID 49-142		**Description**	2nd Fl., H.R., 2005, Black Mastic		
061602991-0142		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Black			**None Detected**
Sample ID 49-143		**Description**	2nd Fl., H.R., 2005, Black Mastic		
061602991-0143		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Black			**None Detected**
Sample ID 50-144		**Description**	2nd Fl., H.R., 2005, Sink Coating		
061602991-0144		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Tan			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Tan			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 50-145		**Description**	2nd Fl., H.R., 2005, Sink Coating		
061602991-0145		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Tan			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Tan			**None Detected**
Sample ID 51-146		**Description**	1st Fl., H.R., 1001, Fireplace Stone Mortar		
061602991-0146		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 51-147		**Description**	1st Fl., H.R., 1001, Fireplace Stone Mortar		
061602991-0147		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 52-148		**Description**	Bsmt., H.R. CMU Mortar		
061602991-0148		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	Gray/Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 52-149		**Description**	Bsmt., H.R. CMU Mortar		
061602991-0149		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 53-150		**Description**	Bsmt., H.R. Drywall		
061602991-0150		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	White	6.00% Cellulose	94.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Fibrous	Non-Fibrous	Non Asbestos / Asbestos
Sample ID 53-151		**Description**	Bsmt., H.R. Drywall		
061602991-0151		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	White	5.00% Cellulose	95.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 54-152		**Description**	Bsmt., H.R. Joint Compound		
061602991-0152		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 54-153		**Description**	Bsmt., H.R. Joint Compound		
061602991-0153		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 55-154		**Description**	Bsmt., H.R. Pipe Insulation		
061602991-0154		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	Tan		77.80% Non-fibrous (other)	**22.20% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 55-155		**Description**	Bsmt., H.R. Pipe Insulation		
061602991-0155		**Homogeneity**			
PLM NYS 198.1 Friable	4/4/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 55-156		**Description**	Bsmt., H.R. Pipe Insulation		
061602991-0156		**Homogeneity**			
PLM NYS 198.1 Friable	4/4/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 56-157 *061602991-0157*		**Description** Bsmt., H.R. Debris on Metal Support **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		71.40% Non-fibrous (other)	**28.60% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 57-158 *061602991-0158*		**Description** Bsmt., H.R. Debris on Galv. Elbow **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Gray	30.00% Wollastonite	70.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 58-159 *061602991-0159*		**Description** 1st Fl., Business Annex, Skim Coat on Concrete **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 58-160 *061602991-0160*		**Description** 1st Fl., Business Annex, Skim Coat on Concrete **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 58-161 *061602991-0161*		**Description** 1st Fl., Business Annex, Skim Coat on Concrete **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 58-162 *061602991-0162*		**Description** 1st Fl., Business Annex, Skim Coat on Concrete **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test			Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID 58-163			**Description** 1st Fl., Business Annex, Skim Coat on Concrete			
061602991-0163			**Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White			100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID 59-164			**Description** 1st Fl., Business Annex, Concrete			
061602991-0164			**Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan			100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID 59-165			**Description** 1st Fl., Business Annex, Concrete			
061602991-0165			**Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan			100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID 60-166			**Description** 1st Fl., Business Annex, Black Mastic under Carpet			
061602991-0166			**Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Black				**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Brown/Black				**None Detected**
Sample ID 60-167			**Description** 1st Fl., Business Annex, Black Mastic under Carpet			
061602991-0167			**Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown/Black				**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Brown/Black				**None Detected**
Sample ID 61-168			**Description** Bsmt., Business Annex, Drywall			
061602991-0168			**Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		4.00% Cellulose	96.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 61-169		**Description**	Bsmt., Business Annex, Drywall		
061602991-0169		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	White	5.00% Cellulose	95.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 62-170		**Description**	Bsmt., Business Annex, Joint Compound		
061602991-0170		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 62-171		**Description**	Bsmt., Business Annex, Joint Compound		
061602991-0171		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 63-172		**Description**	Bsmt., Business Annex, Brick Mortar		
061602991-0172		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 63-173		**Description**	Bsmt., Business Annex, Brick Mortar		
061602991-0173		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	Tan		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 64-174		**Description**	1st Fl., Gate House, 12"x12" Ceiling Tile		
061602991-0174		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Beige			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Beige			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 64-175		**Description**	1st Fl., Gate House, 12"x12" Ceiling Tile		
061602991-0175		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Beige			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Beige			**None Detected**
Sample ID 65-176		**Description**	1st Fl., Gate House, Glue Dabs		
061602991-0176		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Brown			**<1% Chrysotile** **<1% Total**
Sample ID 65-177		**Description**	1st Fl., Gate House, Glue Dabs		
061602991-0177		**Homogenelty**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Brown			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Brown			**None Detected**
Sample ID 66-178		**Description**	1st Fl., Gate House, Drywall		
061602991-0178		**Homogenelty**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	White	5.00% Cellulose	95.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 66-179		**Description**	1st Fl., Gate House, Drywall		
061602991-0179		**Homogenelty**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	White	6.00% Cellulose	94.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 67-180		**Description**	1st Fl., Gate House, Wall Plaster, Top Coat		
061602991-0180		**Homogenelty**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	White		22.00% Ca Carbonate 78.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID 67-181 *061602991-0181*		**Description** 1st Fl., Gate House, Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		30.00% Ca Carbonate 70.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 67-182 *061602991-0182*		**Description** 1st Fl., Gate House, Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		28.00% Ca Carbonate 72.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 67-183 *061602991-0183*		**Description** 1st Fl., Gate House, Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		25.00% Ca Carbonate 75.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 67-184 *061602991-0184*		**Description** 1st Fl., Gate House, Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		29.00% Ca Carbonate 71.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 67-185 *061802991-0185*		**Description** 1st Fl., Gate House, Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		27.00% Ca Carbonate 73.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 67-186 *061602991-0186*		**Description** 1st Fl., Gate House, Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test			Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID	68-187		**Description**	1st Fl., Gate House, Wall Plaster, Base Coat		
	061602991-0187		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Tan	2.00% Hair	30.00% Quartz 7.00% Mica 6.00% Ca Carbonate 55.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	68-188		**Description**	1st Fl., Gate House, Wall Plaster, Base Coat		
	061602991-0188		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Tan	2.00% Hair 5.00% Cellulose	33.00% Quartz 9.00% Mica 5.00% Ca Carbonate 46.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	68-189		**Description**	1st Fl., Gate House, Wall Plaster, Base Coat		
	061802991-0189		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Tan	3.00% Hair	32.00% Quartz 9.00% Mica 7.00% Ca Carbonate 49.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	68-190		**Description**	1st Fl., Gate House, Wall Plaster, Base Coat		
	061602991-0190		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Tan	4.00% Hair	27.00% Quartz 10.00% Mica 9.00% Ca Carbonate 50.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID 68-191 *061602991-0191*		**Description** 1st Fl., Gate House, Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan	3.00% Hair	25.00% Quartz 10.00% Mica 10.00% Ca Carbonate 52.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 68-192 *061602991-0192*		**Description** 1st Fl., Gate House, Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan	3.00% Hair	25.00% Quartz 10.00% Mica 9.00% Ca Carbonate 53.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 68-193 *061602991-0193*		**Description** 1st Fl., Gate House, Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan	2.00% Hair	30.00% Quartz 8.00% Mica 5.00% Ca Carbonate 55.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 69-194 *061602991-0194*		**Description** 1st Fl., Gate House, Fireplace, Brick Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Gray		20.00% Quartz 40.00% Ca Carbonate 40.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test			Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID	69-195		**Description**	1st Fl., Gate House, Fireplace, Brick Mortar		
	061602991-0195		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Gray		16.00% Quartz 44.00% Ca Carbonate 40.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	70-196		**Description**	1st Fl., Gate House, West Room, Linoleum and Mastic		
	061602991-0196		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Gray/Tan/Black			**11.4% Chrysotile** **11.4% Total**
Composite of linoleum and inseparable mastic / tar paper.						
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	70-197		**Description**	1st Fl., Gate House, West Room, Linoleum and Mastic		
	061602991-0197		**Homogeneity**			
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016				**Positive Stop (Not Analyzed)**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	71-198		**Description**	1st Fl., Gate House, West Room, Back Splash		
	061602991-0198		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	White/Black/Gold			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	White/Black/Gold			**None Detected**
Sample ID	71-199		**Description**	1st Fl., Gate House, West Room, Back Splash		
	061602991-0199		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	White/Black/Gold			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	White/Black/Gold			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test			Color	Fibrous	Non-Fibrous	Non Asbestos / Asbestos
Sample ID 72-200 *061602991-0200*			**Description** **Homogeneity**	Bsmt., Gate House, Debris on Ground Homogeneous		
PLM NYS 198.1 Friable	4/4/2016		Brown/Tan	1.00% Cellulose	5.00% Ca Carbonate 94.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID 72-201 *061602991-0201*			**Description** **Homogeneity**	Bsmt., Gate House, Debris on Ground Homogeneous		
PLM NYS 198.1 Friable	4/4/2016		Brown/Tan	3.00% Cellulose	97.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID 73-202 *061602991-0202*			**Description** **Homogeneity**	Bsmt., Gate House, Pipe Insulation Homogeneous		
PLM NYS 198.1 Friable	4/4/2016		Gray		20.00% Non-fibrous (other)	**80.00% Chrysotile**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID 73-203 *061602991-0203*			**Description** **Homogeneity**	Bsmt., Gate House, Pipe Insulation		
PLM NYS 198.1 Friable	4/4/2016					**Positive Stop**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID 73-204 *061602991-0204*			**Description** **Homogeneity**	Bsmt., Gate House, Pipe Insulation		
PLM NYS 198.1 Friable	4/4/2016					**Positive Stop**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID 74-205 *061602991-0205*			**Description** **Homogeneity**	Bsmt., Gate House, Mudded Fitting Homogeneous		
PLM NYS 198.1 Friable	4/4/2016		Gray		25.00% Ca Carbonate 35.00% Non-fibrous (other)	**40.00% Chrysotile**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID 74-206 *061602991-0206*		**Description** Bsmt., Gate House, Mudded Fitting **Homogeneity**			
PLM NYS 198.1 Friable	4/4/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 74-207 *061602991-0207*		**Description** Bsmt., Gate House, Mudded Fitting **Homogeneity**			
PLM NYS 198.1 Friable	4/4/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 75-208 *061602991-0208*		**Description** Bsmt., Gate House, Concrete **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan	3.00% Cellulose	40.00% Quartz 22.00% Ca Carbonate 35.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 75-209 *061602991-0209*		**Description** Bsmt., Gate House, Concrete **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan	3.00% Cellulose	40.00% Quartz 16.00% Ca Carbonate 41.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 76-210 *061602991-0210*		**Description** Bsmt., Gate House, Flue Sealant **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 76-211		**Description**	Bsmt., Gate House, Flue Sealant		
061602991-0211		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/White			**1.4% Chrysotile**
					1.4% Total
Mixture of paint and insulation material.					
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 77-212		**Description**	2nd Fl., Gate House, Bathroom, 9"x9" F.T. and Mastic		
061602991-0212		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/Black			**1.2% Chrysotile**
					1.2% Total
Composite of floor tile and inseparable mastic.					
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 77-213		**Description**	2nd Fl., Gate House, Bathroom, 9"x9" F.T. and Mastic		
061602991-0213		**Homogeneity**			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016				**Positive Stop (Not Analyzed)**
Composite of floor tile and inseparable mastic.					
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 78-214-Joint Compound		**Description**	2nd Fl., Gate House, Joint Compound		
061602991-0214		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	White		5.00% Mica	**None Detected**
				70.00% Ca Carbonate	
				25.00% Non-fibrous (other)	
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 78-214-Tape		**Description**	2nd Fl., Gate House, Joint Compound		
061602991-0214A		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable	4/4/2016	Tan	98.00% Cellulose	2.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 78-215-Joint Compound *061602991-0215*		**Description** 2nd Fl., Gate House, Joint Compound **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		5.00% Mica 45.00% Ca Carbonate 50.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 78-215-Tape *061602991-0215A*		**Description** 2nd Fl., Gate House, Joint Compound **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan	99.00% Cellulose	1.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 79-216 *061602991-0216*		**Description** 1st Fl., Facilities, 1009, Beige w./ Streaks F.T. **Homogenelty** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	White/Black			**1.4% Chrysotile** **1.4% Total**
Composite of floor tile and inseparable mastic.					
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 79-217 *061602991-0217*		**Description** 1st Fl., Facilities, 1009, Beige w./ Streaks F.T. **Homogenelty**			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016				**Positive Stop (Not Analyzed)**
Composite of floor tile and inseparable mastic.					
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 80-218 *061602991-0218*		**Description** Attic, Admin, Blown-In Insulation **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Gray/Tan/Wh	45.00% Cellulose	55.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 80-219 *061602991-0219*		**Description** Attic, Admin, Blown-In Insulation **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Gray/Tan/Wh	44.00% Cellulose <1% Glass	6.00% Ca Carbonate 50.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 80-220 *061602991-0220*		**Description** Attic, Admin, Blown-In Insulation **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Gray/Tan/Wh	40.00% Cellulose	8.00% Ca Carbonate 52.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 81-221 *061602991-0221*		**Description** Attic, Admin, Canvas over Horsehair **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan	94.00% Cellulose <1% Hair	6.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 81-222 *061602991-0222*		**Description** Attic, Admin, Canvas over Horsehair **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan	96.00% Cellulose <1% Hair	4.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 81-223 *061602991-0223*		**Description** Attic, Admin, Canvas over Horsehair **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Tan	96.00% Cellulose <1% Hair	4.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 82-224 *061602991-0224*		**Description** 1st Fl., Facilities, 1009, Felt/Mastic under F.T. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Black			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 82-225 *061602991-0225*		**Description** 1st Fl., Facilities, 1009, Felt/Mastic under F.T. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Black			**None Detected**
Sample ID 83-226 *061602991-0226*		**Description** 1st Fl., Facilities, 1005, Cement Board **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Gray		35.00% Ca Carbonate 28.60% Non-fibrous (other)	**36.40% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 83-227 *061602991-0227*		**Description** 1st Fl., Facilities, 1005, Cement Board **Homogeneity**			
PLM NYS 198.1 Friable	4/4/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 84-228 *061602991-0228*		**Description** 1st Fl., Facilities, 1005, Flue Sealant **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	4/2/2016	Brown/Gray/	53.00% Cellulose	8.00% Ca Carbonate 37.25% Non-fibrous (other)	**1.75% Chrysotile**
Composite of paper and textured paint.					
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 84-229 *061602991-0229*		**Description** 1st Fl., Facilities, 1005, Flue Sealant **Homogeneity**			
PLM NYS 198.1 Friable	4/2/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 85-230 *061602991-0230*		**Description** 3rd Fl., Admin., 3009B, Ceramic Grout **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		12.00% Ca Carbonate 88.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test			Color	Fibrous	Non-Fibrous	Non Asbestos / Asbestos
Sample ID 85-231 *061602991-0231*			**Description** 3rd Fl., Admin., 3009B, Ceramic Grout **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016		White		15.00% Ca Carbonate 85.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID 86-232 *061602991-0232*			**Description** 1st Fl., Facilities, 12"x12" Spline Ceiling Tile **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016		White/Beige			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016		White/Beige			**None Detected**
Sample ID 86-233 *061602991-0233*			**Description** 1st Fl., Facilities, 12"x12" Spline Ceiling Tile **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016		White/Beige			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016		White/Beige			**None Detected**
Sample ID 87-234 *061602991-0234*			**Description** 1st Fl., Facilities, Joint Compound **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016		White		6.00% Mica 70.00% Ca Carbonate 24.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID 87-235 *061602991-0235*			**Description** 1st Fl., Facilities, Joint Compound **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016		White		7.00% Mica 68.00% Ca Carbonate 25.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID 88-236 *061602991-0236*			**Description** 1st Fl., Facilities, Drywall **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016		Gray/Tan	17.00% Cellulose	83.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**

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EMSL Order: 061602991
CustomerID: ADEL50
CustomerPO:
ProjectID:

Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 88-237 *061602991-0237*		**Description** 1st Fl., Facilities, Drywall **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Gray/Tan	20.00% Cellulose	80.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 89-238 *061602991-0238*		**Description** 1st Fl., Facilities, Toilet, Ceramic Grout **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		60.00% Ca Carbonate 40.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 89-239 *061602991-0239*		**Description** 1st Fl., Facilities, Toilet, Ceramic Grout **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	White		65.00% Ca Carbonate 35.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 90-240 *061602991-0240*		**Description** 1st Fl., Facilities, Toilet, 4" Covebase and Mastic **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/Yellow			**Inconclusive: None Detected**
Composite of cove base and inseparable mastic.					
TEM NYS 198.4 NOB	4/4/2016	Gray/Yellow			**None Detected**
Sample ID 90-241 *061602991-0241*		**Description** 1st Fl., Facilities, Toilet, 4" Covebase and Mastic **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/Yellow			**Inconclusive: None Detected**
Composite of cove base and inseparable mastic.					
TEM NYS 198.4 NOB	4/4/2016	Gray/Yellow			**None Detected**
Sample ID 91-242 *061602991-0242*		**Description** 1st Fl., Facilities, Wood Flooring Laminate **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Gray/Black			**None Detected**

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ProjectID:

Test Report:Asbestos Analysis of Bulk Material

Test			Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID	91-243		**Description**	1st Fl., Facilities, Wood Flooring Laminate		
	061602991-0243		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Gray/Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Gray/Black			**None Detected**
Sample ID	92-244		**Description**	1st Fl., Facilities, 1006, Fiberboard Walls		
	061602991-0244		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Brown	90.00% Cellulose	10.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	92-245		**Description**	1st Fl., Facilities, 1006, Fiberboard Walls		
	061602991-0245		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Brown	92.00% Cellulose	8.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	93-246		**Description**	1st Fl., Facilities, Ext., Cementitious Siding		
	061602991-0246		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable		4/4/2016	Gray/White		37.00% Ca Carbonate 29.70% Non-fibrous (other)	**33.30% Chrysotile**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	93-247		**Description**	1st Fl., Facilities, Ext., Cementitious Siding		
	061602991-0247		**Homogeneity**			
PLM NYS 198.1 Friable		4/4/2016				**Positive Stop**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB						**Not Analyzed**
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	94-248		**Description**	1st Fl., Facilities, Ext., Window Caulk		
	061602991-0248		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Gray/White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Gray/White			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 94-249 *061602991-0249*		**Description** 1st Fl., Facilities, Ext., Window Caulk **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Gray/White			**None Detected**
Sample ID 95-250 *061602991-0250*		**Description** Crawlspace, Facilities, Pipe Insul. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Gray		50.00% Non-fibrous (other)	**50.00% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 95-251 *061602991-0251*		**Description** Crawlspace, Facilities, Pipe Insul. **Homogeneity**			
PLM NYS 198.1 Friable	4/4/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 95-252 *061602991-0252*		**Description** Crawlspace, Facilities, Pipe Insul. **Homogeneity**			
PLM NYS 198.1 Friable	4/4/2016				**Positive Stop**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 96-253 *061602991-0253*		**Description** Crawlspace, Facilities, Debris **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/4/2016	Gray		42.90% Non-fibrous (other)	**57.10% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 97-254 *061602991-0254*		**Description** Roof, Facilities, Shingles **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black	7.6% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Black			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test			Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID	97-255		**Description**	Roof, Facilities, Shingles		
	061602991-0255		**Homogeneity**			
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016				**Not Submitted**
Empty sample bag.						
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	98-256		**Description**	Roof, Facilities, Felt		
	061602991-0256		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Black	1.2% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Black			**None Detected**
Sample ID	98-257		**Description**	Roof, Facilities, Felt		
	061602991-0257		**Homogeneity**			
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016				**Not Submitted**
Empty sample bag.						
TEM NYS 198.4 NOB						**Not Analyzed**
Sample ID	99-258		**Description**	Roof, Annex, Roof Shingle		
	061602991-0258		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Brown/Gray/ Black	6.0% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Brown/Gray/ Black			**None Detected**
Sample ID	99-259		**Description**	Roof, Annex, Roof Shingle		
	061602991-0259		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Brown/Gray/ Black	1.8% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Brown/Gray/ Black			**None Detected**
Sample ID	100-260		**Description**	Roof, Annex, Felt		
	061602991-0260		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Black	1.9% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Black			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test			Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID	100-261		**Description**	Roof, Annex, Felt		
	061602991-0261		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Black	1.8% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Black			**None Detected**
Sample ID	101-262		**Description**	1st Fl., Annex, Window Caulk		
	061602991-0262		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	White			**None Detected**
Sample ID	101-263		**Description**	1st Fl., Annex, Window Caulk		
	061602991-0263		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	White			**None Detected**
Sample ID	102-264		**Description**	Roof, Annex, Roof Shingle		
	061602991-0264		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Brown/Red/Black	8.9% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Brown/Red/Black			**None Detected**
Sample ID	102-265		**Description**	Roof, Annex, Roof Shingle		
	061602991-0265		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Brown/Red/Black	7.0% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Brown/Red/Black			**None Detected**
Sample ID	103-266		**Description**	Roof, Annex, Felt		
	061602991-0266		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Black	3.1% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Black			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test			Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID	103-267		**Description**	Roof, Annex, Felt		
	061602991-0267		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Black	3.6% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Black			**None Detected**
Sample ID	104-268		**Description**	1st Fl., Annex, Window Caulk		
	061602991-0268		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	White			**None Detected**
Sample ID	104-269		**Description**	1st Fl., Annex, Window Caulk		
	061602991-0269		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	White			**None Detected**
Sample ID	105-270		**Description**	1st Fl., Gate House, Roof Shingle		
	061602991-0270		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Gray/Red/Black	5.3% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Gray/Red/Black			**None Detected**
Sample ID	105-271		**Description**	1st Fl., Gate House, Roof Shingle		
	061602991-0271		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Gray/Red/Black	4.1% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Gray/Red/Black			**None Detected**
Sample ID	106-272		**Description**	1st Fl., Gate House, Felt		
	061602991-0272		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/2/2016	Black	3.2% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/4/2016	Black			**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 106-273		**Description**	1st Fl., Gate House, Felt		
061602991-0273		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Black	3.2% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Black			**None Detected**
Sample ID 107-274		**Description**	1st Fl., Gate House, Window Caulk		
061602991-0274		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Gray/White			**None Detected**
Sample ID 107-275		**Description**	1st Fl., Gate House, Window Caulk		
061602991-0275		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	Gray/White			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	Gray/White			**None Detected**
Sample ID 108-276		**Description**	1st Fl., H.R., Window Caulk		
061602991-0276		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	White/Blue			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	White/Blue			**None Detected**
Sample ID 108-277		**Description**	1st Fl., H.R., Window Caulk		
061602991-0277		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/2/2016	White/Blue			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/4/2016	White/Blue			**None Detected**

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ProjectID:	

Test Report:Asbestos Analysis of Bulk Material

Test	Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos

Analyst(s)

Ashley Hastings *Ellen Russell*
Andrei Zanko *Matthew Greco*
Daniel Clarke *Steve Jusczuk*

Michelle McGowan, Laboratory Manager
or other approved signatory

NOB = Non Friable Organically Bound N/A = Not Applicable VCM = Vermiculite Containing Material

-In New York State, TEM is currently the only method that can be used to determine if NOB materials can be considered or treated as non-asbestos containing.
All samples examined for the presence of vermiculite when analyzed via NYS 198.1.
-NYS Guidelines for Vermiculite containing samples are available at http://www.wadsworth.org/labcert/elapcert/forms/VermiculiteInterimGuidance_Rev070913.pdf
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Samples analyzed by EMSL Analytical, Inc. Carle Place, NY NYS ELAP 11469

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061602991

Site Address: SUNY Purchase	Date: 3/23 - 3/25/16	Inspector(s) Jason Fullum
735 Anderson Hill Road		
Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable / Non-Friable	Condition g, d, sd
1	1	B	Admin - Tar Paper Behind Wood	1,000SF	NF	D
2	1	B	↓ ↓	↓	↓	D
3	2	B	- Wall Plaster - Top Coat	20,000SF	F	SD
4	2	B				
5	2	B				
6	2	B				
7	2	B				
8	2	B				
9	2	B	↓			
10	3	B	Base Coat			
11	3	B				
12	3	↓				
13	3	↓	↓ ↓ ↓	↓	↓	↓

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area ***5 day TAT***

E-Mail Results to AdelaideLabResults@adelaidellc.com

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2

061602991

Adelaide Environmental Health Associates, Inc
1511 Route 22, Suite C24
Brewster, NY 10509
845-278-7710
845-278-7750 - fax

Site Address:	SUNY Purchase	Date: 3/23 - 3/25/16	Inspector(s) Jason Fullum
	735 Anderson Hill Road		
	Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
14	3	B	Admin. – Wall Plaster – Base Coat	20,000 SF	F	SD
15	3	B	↓	↓	↓	↓
16	3	B	↓	↓	↓	↓
17	4	B	– Ceiling Plaster – Top Coat	10,000 SF	F	SD
18	4	↓	↓	↓	↓	↓
19	4	↓	↓	↓	↓	↓
20	4	↓	↓	↓	↓	↓
21	4	↓	↓	↓	↓	↓
22	4	↓	↓	↓	↓	↓
23	4	↓	↓	↓	↓	↓
24	5	↓	– Base Coat	↓	↓	↓
25	5	↓	↓	↓	↓	↓
26	5	↓	↓	↓	↓	↓

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area

5 day TAT

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3

OrderID: 061602991

Site Address: SUNY Purchase	Date: 3/23 - 3/25/16	Inspector(s) Jason Fullum
735 Anderson Hill Road		
Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
27	5	B	Admin. - Ceiling Plstr - Base Coat	10,000SF	F	SD
28	5					
29	5					
30	5					
31	6	B	- 0012 - Skim Coating	36SF	NF	D
32	6	B				D
33	7	B	- 0008 - Flue Sealant	4SF	NF	SD
34	7	B				SD
35	8	B	- 0001 - Stone Mastic	10,000SF	NF	G
36	8	B				G
37	9	B	- 0007 - Drywall	250SF	F	D
38	9	B				
39	10	B	- Joint Compound			

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area — **5 day TAT**

E-Mail Results to AdelaideLabResults@adelaidellc.com

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Site Address: SUNY Purchase			Date: 3/23 - 3/25/16	Inspector(s) Jason Fullum		
735 Anderson Hill Road						
Purchase, NY 10577			Project #: PGS:15100.02-IN			
Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable / Nonfriable	Condition
40	10	B	Admin - 0007 - Joint Compound	250SF	F	D
41	11	B	↓ - 0010 - Red Fire Stop	10SF	NF	G
42	11	B	↓ ↓ ↓	↓	↓	G
43	12	B	↓ - 0009 - Ceramic Floor Grout	100SF	NF	D
44	12	B	↓ ↓ ↓	↓		D
45	13	B	↓ ↓ - Concrete	5,000SF		D
46	13	B	↓ ↓ ↓	↓	↓	D
47	14	B	↓ 0004 - Black Wall Mastic	5,000SF	NF	D
48	14	B	↓ ↓ ↓	↓	↓	D
49	15	B	↓ ↓ - Material Behind Heat Shield	60SF	F	D
50	15	B	↓ ↓ ↓	↓	↓	D
51	15	B	↓ ↓ ↓	↓	↓	D

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area **5 day TAT**

E-Mail Results to AdelaideLabResults@adelaidellc.com

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Site Address: SUNY Purchase	Date: 3/23 – 3/25/16	Inspector(s) Jason Fullum	
735 Anderson Hill Road			
Purchase, NY 10577	Project #: PGS:15100.02-IN		

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable / NonFriable	Condition g, d, sd
52	16	B	Admin. – 0004 – Pipe Ins Debris	2 SF	NF	D
53	16	B	↓ ↓ ↓	↓	↓	↓
54	16	B	↓ ↓ ↓	↓	↓	↓
55	17	B	↓ ↓ – Brick Mortar	5,000 SF	NF	D
56	17	B	↓ ↓ ↓	↓	↓	D
57	18	B	– Fireplace Stone Mortar	30 SF	NF	G
58	18	B	↓	↓	↓	G
59	19	B	– Fireplace Firebrick Mortar	25 SF	NF	D
60	19	B	↓ ↓ ↓			D
61	20	B	– Fireplace Firebrick			D
62	20	B	↓ ↓ ↓	↓	↓	D
63	21	1	– 1005 – Black Border Tile	200 SF	NF	D
64	21	1	↓ ↓ ↓	↓	↓	D

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area **5 day TAT**

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Site Address: SUNY Purchase	Date: 3/23- 3/25/16	Inspector(s) Jason Fullum	
735 Anderson Hill Road			
Purchase, NY 10577	Project #: PGS:15100.02-IN		

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition
65	22	1	Admin - 1005 - Tan w/ Swirls F.T.	200 SF	NF	G
66	22	1	↓ ↓ ↓	↓	↓	↓
67	23	1	↓ ↓ - Black Mastic/Felt	↓	↓	↓
68	23	1	↓ ↓ ↓	↓	↓	↓
69	24	1	↓ - 1005C - Beige Flooring + Felt	120 SF	↓	D
70	24	1	↓ ↓ ↓	↓	↓	↓
71	25	1	↓ ↓ - Black Mastic/Felt	↓	NF	↓
72	25	1	↓ ↓ ↓	↓	↓	↓
73	26	1	↓ 1005B - Small Black + Brown Flooring Tile	120 SF	NF	G
74	26	1	↓ ↓ ↓	↓	↓	↓
~~75~~	~~27~~	~~1~~	~~Small Beige Floor Tile~~			
~~76~~	~~27~~	~~1~~	~~↓ ↓ ↓~~		↓	↓

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area ***5 day TAT***

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Site Address: SUNY Purchase	Date: 3/23 - 3/25	Inspector(s) Jason Fullum
735 Anderson Hill Road		
Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable-NonFriable	Condition
75	27	1	Admin. - 1005 D - Black Flooring on Concrete	200 SF	NF	A
76	27	1	↓	↓	↓	A
77	28	1	- 12 x 12 Beige F.T.	30 SF	NF	D
78	28	1	↓	↓	↓	D
79	29	1	- 1006 C - Beige w/ Brown Streaks F.T.	20 SF	NF	D
80	29	1	↓	↓	↓	D
81	30	1	- 1006 - 12x12 Gray F.T.	60 SF	NF	G
82	30	1	↓	60 SF	↓	↓
83	31	1	- 12 x 12 White F.T.	60 SF	↓	↓
84	31	1	↓	↓	↓	↓
85	32	1	- 1004 - 12x12 White F.T.	25 SF	NF	↓
86	32	1	↓	↓	↓	↓

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area **5 day TAT**

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Site Address: SUNY Purchase	Date: 3/23 - 3/25	Inspector(s) Jason Fullum
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Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
87	33	1	Admin - 1004 - 12x12 Black FT.	25SF	NF	G
88	33	1	↓ ↓ ↓	↓		G
89	34	1	↓ ↓ - 4" Vinyl Covebase + Mastic	100LF	NF	G
90	34	1	↓ ↓ ↓	↓	↓	G
91	35	1	1004L - Textured Ceiling	1,500SF	F	D
92	35	1	↓ ↓ ↓	↓	↓	↓
93	35	1	↓ ↓ ↓	↓	↓	↓
94	35	1	↓ ↓ ↓	↓	↓	↓
95	35	1	↓ ↓ ↓	↓	↓	↓
96	36	1	1006A - Ceramic Grout	55SF	NF	D
97	36	1	↓ ↓ ↓	↓	↓	D
98	37	2	- 2012F Closet - 12 x 12 Beige FT.	20SF	NF	D
99	37	2	↓ ↓ ↓	↓	↓	D

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Site Address:	SUNY Purchase	Date: 3/23 - 3/25	Inspector(s) Jason Fullum
	735 Anderson Hill Road		
	Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
100	38	2	Admin. - 2012F Closet - Brown Floor Mastic	20SF	NF	
101	38	2	↓ ↓ ↓	↓	↓	
102	39	2	↓ - 2011A - 12 x 12 Gray F.T.	40SF	NF	D
103	39	2	↓ ↓ ↓	↓	↓	↓
104	40	1	↓ - 1001A - 9x9 Ceramic - Mortar	500SF	NF	D
105	40	1	↓ ↓ ↓ ↓	↓	↓	↓
106	41	3	H.R. - 3002 - Wall Plaster - Top Coat	5,000SF	F	D
107	41	3	↓ ↓ ↓ ↓	↓	↓	↓
108	41	3	↓ ↓ ↓ ↓	↓	↓	↓
109	41	3	↓ ↓ ↓ ↓	↓	↓	↓
110	41	3	↓ ↓ ↓ ↓	↓	↓	↓
111	41	3	↓ ↓ ↓ ↓	↓	↓	↓
112	41	3	↓ ↓ ↓ ↓	↓	↓	↓

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area **5 day TAT**

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[signature] 4/3/16 AC [signature] 4/4/16 [signature] 4/4/16 [signature] 4/2/16

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061602991 10

Site Address: SUNY Purchase	Date: 3/23 - 3/25	Inspector(s) Jason Fullum
735 Anderson Hill Road		
Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
113	42	3	H.R. -3002 - Wall Plaster - Base Coat	5,000 SF	F	D
114	42	3	↓	↓	↓	↓
115	42	3	↓	↓	↓	↓
116	42	3	↓	↓	↓	↓
117	42	3	↓	↓	↓	↓
118	42	3	↓	↓	↓	↓
119	42	3	↓	↓	↓	↓
120	43	3	- Ceiling Plaster - Top Coat	2,000 SF	F	D
121	43	3	↓	↓	↓	↓
122	43	3	↓	↓	↓	↓
123	43	3	↓	↓	↓	↓
124	43	3	↓	↓	↓	↓
125	43	3	↓	↓	↓	↓

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Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area ***5 day TAT***

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[initials] 4/3/16 [signature] 4/4/16 [signature] 4/4/16 [signature] 4/2/16 4:15pm

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061602991 1.1

Site Address: SUNY Purchase
735 Anderson Hill Road
Purchase, NY 10577

Date: 3/23 – 3/25

Inspector(s) Jason Fullum

Project #: PGS:15100.02-IN

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
126	43	3	H.R. - 3002 - Ceiling Plaster - Top Coat	2,000SF	F	D
127	44	3	↓ ↓ ↓ - Blue Coat	↓	↓	↑
128	44	3				
129	44	3				
130	44	3				
131	44	3				
132	44	3				
133	44	3	↓ ↓ ↓ ↓	↓	↓	↓
134	45	3	- 3003 - Multi Colored Linoleum	585SF	NF	D
135	45	3				D
136	46	3	- 2nd Layer Flooring			D
137	46	3	↓ ↓ ↓	↓	↓	D

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Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area **5 day TAT**

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Site Address: SUNY Purchase	Date: 3/23 - 3/25	Inspector(s) Jason Fullum
735 Anderson Hill Road		
Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
138	47	2	H.R. - 205 - 12x12 Gray F.T.	25SF	NF	D
139	47	2				
140	48	2	-12x12 White F.T.	25SF		
141	48	2				
142	49	2	- Black Mastic	50SF		G
143	49	2				
144	50	2	- Sink Coating	4SF		
145	50	2				
146	51	1	- 1001 - Fireplace Stone Mortar	58.5SF	NF	D
147	51	1				D
148	52	B	- Dmt. - CMU Mortar	300SF	NF	D
149	52	B				D

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Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area **5 day TAT**

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Site Address: SUNY Purchase			Date: 3/23/16 - 3/28/16	Inspector(s) Jason Fullum		
735 Anderson Hill Road						
Purchase, NY 10577			Project #: PGS:15100.02-IN			
Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable / NonFriable	Condition g, d, sd
150	53	B	H.R. - Bsmt - Drywall	40SF	F	D
151	53	B	↓	↓	↓	↓
152	54	B	Joint Compound	↓	↓	↓
153	54	B	↓	↓	↓	↓
154	55	B	- Pipe Insulation	25LF	F	D
155	55	B	↓	↓	↓	↓
156	55	B	↓	↓	↓	↓
157	56	B	- Debris on Metal Support	1SF	F	SD
158	57	B	- Debris on Gal. Elbow	1LF	F	SD
159	58	1	Business Annex - Skin Coat on Concrete	1,500SF	F	D
160	58	1	↓	↓	F	↓
161	58	1	↓	↓	F	↓
162	58	1	↓	↓	F	↓

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area **5 day TAT**

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Site Address: SUNY Purchase	Date: 3/23/16 - 3/25/16	Inspector(s) Jason Fullum	
735 Anderson Hill Road			
Purchase, NY 10577	Project #: PGS:15100.02-IN		

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable - Nonfriable	Condition g, d, sd
163	58	1	Business Area - Skin Coat on Concrete	1,000 SF	F	D
164	59	1	↓ - Concrete	1,500 SF	NF	D
165	59	1	↓ ↓	↓	↓	D
166	60	1	↓ - Black Mastic Under Carpet	600 SF	NF	D
167	60	1	↓ ↓	↓	↓	D
168	61	B	↓ - Drywall	200 SF	F	SD
169	61	B	↓ ↓	↓	↓	↓
170	62	B	↓ - Joint Compound	↓	↓	↓
171	62	B	↓ ↓	↓	↓	↓
172	63	B	↓ - Brick Mortar	20 SF	NF	D
173	63	B	↓ ↓	↓	↓	D
174	64	1	Gate House - 12x12 Ceiling Tile	2,000 SF	F	D
175	64	1	↓ ↓	↓	F	D

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area **5 day TAT**

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Site Address:	SUNY Purchase	Date: 3/23 - 3/25	Inspector(s) Jason Fullum
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	Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
176	65	1	Gate House - Glue Dabs	2,000 SF	NF	D
177	65	1	↓ ↓	↓	↓	↓
178	66	1	- Drywall	3,000 SF	F	↓
179	66	1	↓ ↓	↓	↓	↓
180	67	1	- Plaster Wall - Top Coat	5,000 SF	F	D
181	67	1	↓ ↓ ↓	↓	↓	↓
182	67	1	↓ ↓ ↓	↓	↓	↓
183	67	1	↓ ↓ ↓	↓	↓	↓
184	67	1	↓ ↓ ↓	↓	↓	↓
185	67	1	↓ ↓ ↓	↓	↓	↓
186	67	1	↓ ↓ ↓	↓	↓	↓
187	68	1	- Base Coat	5,000 SF	↓	↓
188	68	1	↓ ↓ ↓	↓	↓	↓

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16 MAR 28 AM 9:28

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area **5 day TAT**

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Site Address: SUNY Purchase	Date: 3/23 - 3/25	Inspector(s) Jason Fullum
735 Anderson Hill Road		
Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
189	68	1	Gate House - Plaster Wall - Base Coat	5000 SF	F	D
190	68	1	↓	↓	↓	↓
191	68	1	↓	↓	↓	↓
192	68	1	↓	↓	↓	↓
193	68	1	↓	↓	↓	↓
194	69	1	- Fireplace - Brick Mortar	30 SF	NF	G
195	69	1	↓	↓	↓	G
196	70	1	- West Room - Linoleum + Mastic	250 SF	NF	D
197	70	1	↓	↓	↓	D
198	71	1	- - Back Splash	100 SF	NF	D
199	71	1	↓	↓	↓	D
200	72	B	- Debris on Ground	200 SF	F	SD
201	72	B	↓	↓	↓	L

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061602991 17

Site Address: SUNY Purchase			Date: 3/23/16 - 3/25/16	Inspector(s) Jason Fullum		
735 Anderson Hill Road						
Purchase, NY 10577			Project #: PGS:15100.02-IN			
Sample ID #	**Homogeneous Area**	**Floor Level**	**Sample Location/Description**	**Quantity (In Feet)**	**Friable NonFriable**	**Condition g, d, sd**
202	73	B	Gate House - Pipe Insulation	50 LF	F	SD
203	73	B	↓	↓	↓	↓
204	73	B	↓	↓	↓	↓
205	74	B	- Mudded Fitting	1 LF	F	D
206	74	B	↓	↓	↓	↓
207	74	B	↓	↓	↓	↓
208	75	B	- Concrete	200 SF	NF	G
209	75	B	↓	↓	↓	G
210	76	B	- Flue Sealant	4 SF	NF	D
211	76	B	↓	↓	↓	D
212	77	2	- Bathroom 9x9 Fit. + Mastic	40 SF	NF	D
213	77	2	↓	↓	↓	D

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OrderID: 061602991

Site Address: SUNY Purchase	Date: 3/23/16 - 3/25/16	Inspector(s) Jason Fullum
735 Anderson Hill Road		
Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
214	78	2	Gate House - Joint Compound	200 SF	F	D
215	78	2	↓	↓	↓	↓
216	79	1	Facilities - Beige w/ Streaks F.T. - 100'	70 SF	NF	G
217	79	1	↓	↓	↓	G
218	80	Attic	Admin. - Blown In Insulation	500 SF	F	D
219	80	↓	↓	↓	F	D
220	80	↓	↓	↓	F	D
221	81	↓	- Canvas Over Horsehair	30 LF	NF	D
222	81	↓	↓	↓	↓	↓
223	81	↓	↓	↓	↓	↓
224	82	1	Facilities - Felt/Mastic Under F.T. - 100'	70 SF	NF	G
225	82	1	↓	↓	↓	G

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Site Address:	SUNY Purchase	Date: 3/23 - 3/25/16	Inspector(s) Jason Fullum
	735 Anderson Hill Road		
	Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
226	83	1	Facilities - 1005 - Cement Board	300 SF	NF	D
227	83	1	↓ ↓ ↓	↓	↓	D
228	84	1	↓ ↓ - Flue Sealant	4 SF	F	D
229	84	1	↓ ↓ ↓	↓	↓	D
230	85	3	Admin. - 3009B - Ceramic Grout	75 SF	NF	D
231	85	3	↓ ↓ ↓	↓	↓	D
232	86	1	Facilities - 12x12 Spline Ceiling Tile	70 SF	F	G
233	86	1	↓ ↓	↓	↓	G
234	87	1	↓ - Joint Compound	200 SF	F	G
235	87	1	↓ ↓	↓		G
236	88	1	↓ - Drywall	↓		G
237	88	1	↓ ↓	↓	↓	G

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Site Address:	SUNY Purchase	Date: 3/23 – 3/25/16	Inspector(s) Jason Fullum
	735 Anderson Hill Road		
	Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
238	89	1	Facilities – Toilet – Ceramic Grout	50 SF	NF	D
239	89	1	↓ ↓ ↓	↓	↓	D
240	90	1	– – 4" Covebase Mastic	200 SF	NF	D
241	90	1	↓	↓		D
242	91	1	– Wood Flooring Laminate	70 SF		D
243	91	1	↓ ↓ ↓	↓	↓	D
244	92	1	– 1006 – Fiberboard Walls	800 SF	NF	D
245	92	1	↓ ↓	↓	↓	D
246	93	1	– Ext. – Cementitious Siding	1500 SF	NF	D
247	93	1	↓ ↓	↓	↓	D
248	94	1	– Window Caulk	600 LF	NF	D
249	94	1	↓ ↓ ↓	↓	↓	D

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Site Address: SUNY Purchase	Date: 3/23 - 3/25/16	Inspector(s) Jason Fullum
735 Anderson Hill Road		
Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
250	95	BCS	Facilities - Crawlspace - Pipe Ins.	150LF	F	SD
251	95	CS	↓	↓	↓	↓
252	95	CS	↓	↓	↓	↓
253	96	CS	↓ - Debris	100SF	F	SD
254	97	R	↓ - Shingles	2000SF	NF	G
255	97	R	↓	↓	↓	↓
256	98	R	↓ - Felt	↓	↓	↓
257	98	R	↓	↓	↓	↓
258	99	R	Annex - Shingles	800SF	NF	G
259	99	R	↓	↓	↓	↓
260	100	R	↓ - Felt	↓	↓	↓
261	100	R	↓	↓	↓	↓

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Site Address: SUNY Purchase			Date: 3/23 - 3/25/16	Inspector(s) Jason Fullum		
735 Anderson Hill Road						
Purchase, NY 10577			Project #: PGS:15100.02-IN			
Sample ID #	**Homogeneous Area**	**Floor Level**	**Sample Location/Description**	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
262	101	R1	Annex - Window Caulk	200 LF	NF	D
263	101	1	↓ ↓	↓	↓	D
264	102	R	Admin - Roof Shingle	10,000 SF	NF	D
265	102	R	↓	↓	↓	↓
266	103	R	- Felt	↓	↓	↓
267	103	R	↓	↓	↓	↓
268	104	1	- E Window Caulk	100 LF	↓	↓
269	104	1	↓ ↓	↓	↓	↓
270	105	1	Gate House - Roof Shingle	1000 SF	NF	D
271	105	1	↓ ↓	↓	↓	↓
272	106	1	- Felt	↓	↓	↓
273	106	1	↓ ↓	↓	↓	↓

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Site Address: SUNY Purchase	Date: 3/23 – 3/25/16	Inspector(s) Jason Fullum
735 Anderson Hill Road		
Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
274	107	1	Gate House - Window Caulk	150 LF	NF	D
275	107	1	↓ ↓	↓	↓	↓
276	108	1	H.R. - Window Caulk	150 LF	NF	D
277	108	1	↓ ↓	↓	↓	↓

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EMSL Order:	061603688
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CustomerPO:	
ProjectID:	

Attn: **Adelaide Associates, LLC**
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Brewster, NY 10509

Phone:	(845) 278-7710
Fax:	(845) 278-7750
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Analysis Date:	4/15/2016
Collected:	4/13/2016

Project: **SUNY Purchase, 735 Anderson Hill Road, Purchase, NY 10577, Project #: PGS: 15100.02-IN**

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID 97-255 *061603688-0001*		**Description** Roof, Facilities - Shingles **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/15/2016	Brown/Red/Black	5.1% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/15/2016	Brown/Red/Black			**None Detected**
Sample ID 98-257 *061603688-0002*		**Description** Roof, Facilities - Felt **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/15/2016	Black	3.7% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/15/2016	Black			**None Detected**
Sample ID 109-278 *061603688-0003*		**Description** 1st Fl., Admin. - Wall Plaster, Top Coat **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	4/15/2016	Tan/White		60.00% Gypsum 35.00% Ca Carbonate 5.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 109-279 *061603688-0004*		**Description** 1st Fl., Admin. - Wall Plaster, Top Coat **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	4/15/2016	Tan/White		55.00% Gypsum 40.00% Ca Carbonate 5.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

Initial Report From 04/15/2016 02:28:17

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 109-280 *061603688-0005*		**Description** 1st Fl., Admin. - Wall Plaster, Top Coat **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	4/15/2016	Tan/White		60.00% Gypsum 35.00% Ca Carbonate 5.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 110-281 *061603688-0006*		**Description** 1st Fl., Admin. - Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/15/2016	Gray/Tan		59.00% Quartz 27.00% Gypsum 5.00% Ca Carbonate 7.75% Non-fibrous (other)	**1.25% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 110-282 *061603688-0007*		**Description** 1st Fl., Admin. - Wall Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/15/2016				**Positive Stop (Not Analyzed)**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 110-283 *061603688-0008*		**Description** 1st Fl., Admin. - Wall Plaster, Base Coat **Homogeneity**			
PLM NYS 198.1 Friable	4/15/2016				**Positive Stop (Not Analyzed)**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 111-284 *061603688-0009*		**Description** 2nd Fl., Admin. - Wall Plaster, Top Coat **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	4/15/2016	White		6.00% Mica 79.00% Ca Carbonate 15.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 111-285 *061603688-0010*		**Description** 2nd Fl., Admin. - Wall Plaster, Top Coat **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	4/15/2016	White		8.00% Mica 67.00% Ca Carbonate 25.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 111-286 *061603688-0011*		**Description** 2nd Fl., Admin. - Wall Plaster, Top Coat **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	4/15/2016	Tan/White		5.00% Mica 35.00% Gypsum 40.00% Ca Carbonate 20.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 112-287 *061603688-0012*		**Description** 2nd Fl., Admin. - Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/15/2016	Gray		45.00% Quartz 30.00% Ca Carbonate 25.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 112-288 *061603688-0013*		**Description** 2nd Fl., Admin. - Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/15/2016	Gray		55.00% Quartz 25.00% Ca Carbonate 20.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 112-289 *061603688-0014*		**Description** 2nd Fl., Admin. - Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/15/2016	Gray		45.00% Quartz 30.00% Ca Carbonate 25.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 113-290 *061603688-0015*		**Description** 3rd Fl., Admin. - Wall Plaster, Top Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/15/2016	White		70.00% Gypsum 25.00% Ca Carbonate 5.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 113-291 *061603688-0016*		**Description** 3rd Fl., Admin. - Wall Plaster, Top Coat **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	4/15/2016	Tan/White		70.00% Gypsum 15.00% Ca Carbonate 15.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 113-292 *061603688-0017*		**Description** 3rd Fl., Admin. - Wall Plaster, Top Coat **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	4/15/2016	Tan/White		70.00% Gypsum 15.00% Ca Carbonate 15.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 114-293 *061603688-0018*		**Description** 3rd Fl., Admin. - Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/15/2016	Gray	<1% Cellulose	55.00% Quartz 32.00% Gypsum 5.00% Ca Carbonate 7.50% Non-fibrous (other)	**0.50% Chrysotile**
TEM recommended.					
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 114-294 *061603688-0019*		**Description** 3rd Fl., Admin. - Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/15/2016	Gray	2.00% Cellulose	48.00% Quartz 37.00% Gypsum 5.00% Ca Carbonate 8.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 114-295 *061603688-0020*		**Description** 3rd Fl., Admin. - Wall Plaster, Base Coat **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	4/15/2016	Gray	1.00% Cellulose	49.00% Quartz 37.00% Gypsum 5.00% Ca Carbonate 8.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 115-296 *061603688-0021*		**Description** 1st Fl., Annex - Wire Insulation **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/15/2016	Brown/Gray/ White	<1% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/15/2016	Brown/Gray/ White			**None Detected**
Sample ID 115-297 *061603688-0022*		**Description** 1st Fl., Annex - Wire Insulation **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/15/2016	Black	<1% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/15/2016	Black			**None Detected**
Sample ID 116-298 *061603688-0023*		**Description** Bsmt., Gate House - Wire Insulation **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	4/15/2016	Black	<1% Glass		**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/15/2016	Black			**None Detected**

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528 Mineola Avenue, Carle Place, NY 11514
Phone/Fax: (516) 997-7251 / (516) 997-7528
http://www.EMSL.com carleplacelab@emsl.com

EMSL Order:	061603688
CustomerID:	ADEL50
CustomerPO:	
ProjectID:	

Test Report:Asbestos Analysis of Bulk Material

Test			Color	Non Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID	116-299		**Description**	Bsmt., Gate House - Wire Insulation		
	061603688-0024		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/15/2016	Brown/Gray			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/15/2016	Brown/Gray			**None Detected**
Sample ID	117-300		**Description**	Bsmt., Admin. - Wire Insulation		
	061603688-0025		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/15/2016	Tan/Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/15/2016	Tan/Black			**None Detected**
Sample ID	117-301		**Description**	Bsmt., Admin. - Wire Insulation		
	061603688-0026		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable						**Not Analyzed**
PLM NYS 198.6 VCM						**Not Analyzed**
PLM NYS 198.6 NOB		4/15/2016	Tan/Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB		4/15/2016	Tan/Black			**None Detected**

Analyst(s)
Keith McWilliams
Steve Jusczuk

Michelle McGowan, Laboratory Manager
or other approved signatory

NOB = Non Friable Organically Bound N/A = Not Applicable VCM = Vermiculite Containing Material

-In New York State, TEM is currently the only method that can be used to determine if NOB materials can be considered or treated as non-asbestos containing.
All samples examined for the presence of vermiculite when analyzed via NYS 198.1.
-NYS Guidelines for Vermiculite containing samples are available at http://www.wadsworth.org/labcert/elapcert/forms/VermiculiteInterimGuidance_Rev070913.pdf
EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples were received in good condition unless otherwise noted.
This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. This report may contain data that is not covered by the NVLAP accreditation.

Samples analyzed by EMSL Analytical, Inc. Carle Place, NY NYS ELAP 11469

Initial Report From 04/15/2016 02:28:17

OrderID: 061603688

Adelaide Environmental Health Associates, Inc

1511 Route 22, Suite C24
Brewster, NY 10509
845-278-7710
845-278-7750 - fax

061603688

Site Address: SUNY Purchase	Date: 4/13/16	Inspector(s) Jason Fullum	
735 Anderson Hill Road			
Purchase, NY 10577	Project #: PGS:15100.02-IN		

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
255	97	R	Facilities - Shingles	200 SF	NF	G
257	98	R	↓ - Felt	↓	NF	G
278	109	1	Admin. - Wall Plaster - Top Coat	20,000 SF	F	D
279	109	1	↓			
280	109	1	↓			
281	110	1	- Base Coat			
282	110	1	↓			
283	110	1	↓			
284	111	2	- Top Coat			
285	111	2	↓			
286	111	2	↓			
287	112	2	- Base Coat			
288	112	2	↓	↓	↓	↓

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area — ***24 Hour TA***

E-Mail Results to AdelaideLabResults@adelaidellc.com

Relinquished by: [signature] 4/13/16
Received by: [signature] 4-14-16
Relinquished by:
Received by:

RECEIVED ANALYTICAL ... 03

[signature] 4-15-16 [signature] 4/14/16 12:05 m

Adelaide Environmental Health Associates, Inc
1511 Route 22, Suite C24
Brewster, NY 10509
845-278-7710
845-278-7750 - fax

061603688

Site Address: SUNY Purchase	Date: 4/13/16	Inspector(s) Jason Fullum
735 Anderson Hill Road		
Purchase, NY 10577	Project #: PGS:15100.02-IN	

Sample ID #	Homogeneous Area	Floor Level	Sample Location/Description	Quantity (In Feet)	Friable NonFriable	Condition g, d, sd
284	112	2	Admin. - Wall Plaster - Base Coat	20,000 SF	F	D
290	113	3	- Top Coat			
291	113	3				
292	113	3				
293	114	3	- Base Coat			
294	114	3				
295	114	3				
296	115	1	Annex - Wire Insulation	500 LF	NF	D
297	115	1				A
298	116	B	Gate House - Wire Insulation	5,000 LF	NF	D
299	116	B				D
300	117	B	Admin - Wire Insulation	10,000 LF	NF	B
301	117	B				

Special Instructions/ Turnaround Time:

Stop at 1st Positive per Homogenous Area **24 Hour TA**

E-Mail Results to AdelaideLabResults@adelaidellc.com

Relinquished by: 4/13/16
Received by:
Relinquished by: 4-14-16
Received by:

4/15/16 1200 hrs

APPENDIX D

XRF READINGS

SUNY Purchase

Index	Time	Site	Space Type	Floor	Room	Component	Color	Substrate	PbC	PbL	PbK	Units	Results	Inspector
1	2016-03-23 10:56	SUNY PURCHASE	School	Basement	Calibrate				1.00 ± 0.10	1.00 ± 0.10	1.00 ± 0.40	mg / cm ^2	Null	Jason Fullum
2	2016-03-23 10:57	SUNY PURCHASE	School	Basement	Calibrate				0.90 ± 0.10	0.90 ± 0.10	< LOD : 0.90	mg / cm ^2	Negative	Jason Fullum
3	2016-03-23 10:57	SUNY PURCHASE	School	Basement	Calibrate				0.90 ± 0.10	0.90 ± 0.10	< LOD : 1.05	mg / cm ^2	Negative	Jason Fullum
4	2016-03-23 10:57	SUNY PURCHASE	School	Basement	Calibrate				0.90 ± 0.20	0.90 ± 0.20	< LOD : 2.55	mg / cm ^2	Null	Jason Fullum
5	2016-03-23 10:58	SUNY PURCHASE	School	Basement	Calibrate				1.10 ± 0.40	1.10 ± 0.40	< LOD : 3.00	mg / cm ^2	Null	Jason Fullum
6	2016-03-23 10:59	SUNY PURCHASE	School	Basement	Calibrate				1.00 ± 0.10	1.00 ± 0.10	1.00 ± 0.30	mg / cm ^2	Positive	Jason Fullum
7	2016-03-23 11:01	SUNY PURCHASE ADMIN	School	Basement	0004	Wall	Brown	Wood	< LOD : 0.36	< LOD : 0.36	< LOD : 3.21	mg / cm ^2	Negative	Jason Fullum
8	2016-03-23 11:01	SUNY PURCHASE ADMIN	School	Basement	0004	Door-Interior	Brown	Wood	< LOD : 0.09	< LOD : 0.09	< LOD : 2.85	mg / cm ^2	Negative	Jason Fullum
9	2016-03-23 11:02	SUNY PURCHASE ADMIN	School	Basement	0004	Door-Interior	Brown	Metal	< LOD : 11.25	0.80 ± 0.40	< LOD : 11.25	mg / cm ^2	Positive	Jason Fullum
10	2016-03-23 11:04	SUNY PURCHASE ADMIN	School	Basement	0009	Door-Interior	White	Wood	< LOD : 0.06	< LOD : 0.06	< LOD : 1.98	mg / cm ^2	Negative	Jason Fullum
11	2016-03-23 11:04	SUNY PURCHASE ADMIN	School	Basement	0009	Door Frame	White	Wood	< LOD : 0.09	< LOD : 0.09	< LOD : 3.30	mg / cm ^2	Negative	Jason Fullum
12	2016-03-23 11:04	SUNY PURCHASE ADMIN	School	Basement	0009	Wall	White	Plaster	< LOD : 13.05	< LOD : 4.65	< LOD : 13.05	mg / cm ^2	Positive	Jason Fullum
13	2016-03-23 11:05	SUNY PURCHASE ADMIN	School	Basement	0009	Stair Tread	Varnish	Wood	< LOD : 0.38	< LOD : 0.38	< LOD : 3.30	mg / cm ^2	Negative	Jason Fullum
14	2016-03-23 11:06	SUNY PURCHASE ADMIN	School	Basement	0009	Stair Handrail	Varnish	Wood	< LOD : 0.25	< LOD : 0.25	< LOD : 3.45	mg / cm ^2	Negative	Jason Fullum
15	2016-03-23 11:06	SUNY PURCHASE ADMIN	School	Basement	0009	Trim	White	Wood	< LOD : 0.23	< LOD : 0.23	< LOD : 3.60	mg / cm ^2	Negative	Jason Fullum
16	2016-03-23 11:06	SUNY PURCHASE ADMIN	School	Basement	0009	Electrical Panel	White	Metal	< LOD : 0.37	< LOD : 0.37	< LOD : 6.33	mg / cm ^2	Negative	Jason Fullum
17	2016-03-23 11:08	SUNY PURCHASE ADMIN	School	Basement	0001	Wall	White	Concrete	< LOD : 0.07	< LOD : 0.07	< LOD : 1.50	mg / cm ^2	Negative	Jason Fullum
18	2016-03-23 11:09	SUNY PURCHASE ADMIN	School	Basement	0007	Wall	White	Drywall	< LOD : 0.03	< LOD : 0.03	< LOD : 2.22	mg / cm ^2	Negative	Jason Fullum
19	2016-03-23 11:09	SUNY PURCHASE ADMIN	School	Basement	0007	Door Frame	White	Wood	< LOD : 0.04	< LOD : 0.04	< LOD : 3.30	mg / cm ^2	Negative	Jason Fullum
20	2016-03-23 11:10	SUNY PURCHASE ADMIN	School	Basement	0007	Door-Interior	White	Wood	< LOD : 0.07	< LOD : 0.07	< LOD : 3.28	mg / cm ^2	Negative	Jason Fullum
21	2016-03-23 11:10	SUNY PURCHASE ADMIN	School	Basement	0007	Floor	Gray	Concrete	< LOD : 0.28	< LOD : 0.28	< LOD : 3.60	mg / cm ^2	Null	Jason Fullum
22	2016-03-23 11:10	SUNY PURCHASE ADMIN	School	Basement	0007	Floor	Gray	Concrete	< LOD : 0.05	< LOD : 0.05	< LOD : 1.80	mg / cm ^2	Negative	Jason Fullum
23	2016-03-23 11:12	SUNY PURCHASE ADMIN	School	Basement	0015	Ceiling	White	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 2.71	mg / cm ^2	Null	Jason Fullum
24	2016-03-23 11:13	SUNY PURCHASE ADMIN	School	Basement	0015	Ceiling	White	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 1.20	mg / cm ^2	Negative	Jason Fullum
25	2016-03-23 11:13	SUNY PURCHASE ADMIN	School	Basement	0015	Wall	White	Plaster	< LOD : 0.04	< LOD : 0.04	< LOD : 6.36	mg / cm ^2	Null	Jason Fullum
26	2016-03-23 11:13	SUNY PURCHASE ADMIN	School	Basement	0015	Wall	White	Plaster	< LOD : 0.05	< LOD : 0.05	< LOD : 7.43	mg / cm ^2	Null	Jason Fullum
27	2016-03-23 11:14	SUNY PURCHASE ADMIN	School	Basement	0015	Wall	White	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 1.86	mg / cm ^2	Negative	Jason Fullum
28	2016-03-23 13:05	SUNY PURCHASE ADMIN	School	1st Floor	1004	Wall	White	Plaster	< LOD : 0.44	< LOD : 0.44	< LOD : 7.20	mg / cm ^2	Null	Jason Fullum
29	2016-03-23 13:05	SUNY PURCHASE ADMIN	School	1st Floor	1004	Wall	White	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 2.30	mg / cm ^2	Negative	Jason Fullum
30	2016-03-23 13:05	SUNY PURCHASE ADMIN	School	1st Floor	1004	Window Case	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.89	mg / cm ^2	Negative	Jason Fullum
31	2016-03-23 13:06	SUNY PURCHASE ADMIN	School	1st Floor	1005	Wall	White	Plaster	< LOD : 27.60	< LOD : 0.04	< LOD : 27.60	mg / cm ^2	Positive	Jason Fullum
32	2016-03-23 13:07	SUNY PURCHASE ADMIN	School	1st Floor	1005	Ceiling	White	Plaster	< LOD : 5.25	< LOD : 0.03	< LOD : 5.25	mg / cm ^2	Positive	Jason Fullum
33	2016-03-23 13:07	SUNY PURCHASE ADMIN	School	1st Floor	1005D	Wall	White	Plaster	< LOD : 27.45	< LOD : 3.15	< LOD : 27.45	mg / cm ^2	Positive	Jason Fullum
34	2016-03-23 13:08	SUNY PURCHASE ADMIN	School	1st Floor	1005D	Window Case	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 1.95	mg / cm ^2	Negative	Jason Fullum
35	2016-03-23 13:09	SUNY PURCHASE ADMIN	School	1st Floor	1005D	Door-Interior	White	Wood	< LOD : 0.04	< LOD : 0.04	< LOD : 3.73	mg / cm ^2	Negative	Jason Fullum
36	2016-03-23 13:09	SUNY PURCHASE ADMIN	School	1st Floor	1005	Door Frame	White	Wood	< LOD : 0.17	< LOD : 0.17	< LOD : 3.90	mg / cm ^2	Negative	Jason Fullum
37	2016-03-23 13:40	SUNY PURCHASE ADMIN	School	2nd Floor	2018	Wall	Beige	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 2.36	mg / cm ^2	Negative	Jason Fullum
38	2016-03-23 13:41	SUNY PURCHASE ADMIN	School	2nd Floor	2018	Door Frame	White	Wood	< LOD : 0.09	< LOD : 0.09	< LOD : 2.85	mg / cm ^2	Negative	Jason Fullum
39	2016-03-23 13:41	SUNY PURCHASE ADMIN	School	2nd Floor	2018	Door-Interior	White	Wood	< LOD : 0.04	< LOD : 0.04	< LOD : 3.25	mg / cm ^2	Negative	Jason Fullum
40	2016-03-23 13:41	SUNY PURCHASE ADMIN	School	2nd Floor	2018	Wall	Beige	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 2.15	mg / cm ^2	Negative	Jason Fullum
41	2016-03-23 13:42	SUNY PURCHASE ADMIN	School	2nd Floor	2018	Window Case	White	Wood	< LOD : 0.05	< LOD : 0.05	< LOD : 4.20	mg / cm ^2	Negative	Jason Fullum
42	2016-03-23 13:42	SUNY PURCHASE ADMIN	School	2nd Floor	2020	Window Case	White	Wood	< LOD : 0.04	< LOD : 0.04	< LOD : 2.85	mg / cm ^2	Negative	Jason Fullum
43	2016-03-23 13:43	SUNY PURCHASE ADMIN	School	2nd Floor	2020	Radiator	White	Metal	< LOD : 5.10	< LOD : 3.00	< LOD : 5.10	mg / cm ^2	Positive	Jason Fullum
44	2016-03-23 13:44	SUNY PURCHASE ADMIN	School	2nd Floor	2020	Trim	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.70	mg / cm ^2	Negative	Jason Fullum
45	2016-03-23 13:44	SUNY PURCHASE ADMIN	School	2nd Floor	2020	Door Frame	White	Wood	< LOD : 0.07	< LOD : 0.07	< LOD : 3.27	mg / cm ^2	Negative	Jason Fullum
46	2016-03-23 13:44	SUNY PURCHASE ADMIN	School	2nd Floor	2020	Door-Interior	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.85	mg / cm ^2	Negative	Jason Fullum
47	2016-03-23 13:45	SUNY PURCHASE ADMIN	School	2nd Floor	2012	Door-Interior	White	Wood	< LOD : 18.75	< LOD : 3.90	< LOD : 18.75	mg / cm ^2	Positive	Jason Fullum
48	2016-03-23 13:45	SUNY PURCHASE ADMIN	School	2nd Floor	2012	Door Frame	White	Wood	7.00 ± 4.10	< LOD : 2.25	7.00 ± 4.10	mg / cm ^2	Positive	Jason Fullum
49	2016-03-23 13:46	SUNY PURCHASE ADMIN	School	2nd Floor	2012	Wall	Beige	Plaster	< LOD : 20.40	< LOD : 8.55	< LOD : 20.40	mg / cm ^2	Positive	Jason Fullum
50	2016-03-23 14:13	SUNY PURCHASE ADMIN	School	2nd Floor	2010	Wall	Yellow	Plaster	< LOD : 26.10	< LOD : 0.41	< LOD : 26.10	mg / cm ^2	Positive	Jason Fullum
51	2016-03-23 14:14	SUNY PURCHASE ADMIN	School	2nd Floor	2010	Door Frame	Brown	Wood	< LOD : 46.65	< LOD : 8.40	< LOD : 46.65	mg / cm ^2	Positive	Jason Fullum
52	2016-03-23 14:14	SUNY PURCHASE ADMIN	School	2nd Floor	2010	Door-Interior	Brown	Wood	< LOD : 48.30	< LOD : 8.70	< LOD : 48.30	mg / cm ^2	Positive	Jason Fullum

SUNY Purchase

Index	Time	Site	Space Type	Floor	Room	Component	Color	Substrate	PbC	PbL	PbK	Units	Results	Inspector
53	2016-03-23 14:14	SUNY PURCHASE ADMIN	School	2nd Floor	2011	Wall	Beige	Plaster	< LOD : 28.65	< LOD : 6.45	< LOD : 28.65	mg / cm ^2	Positive	Jason Fullum
54	2016-03-23 14:15	SUNY PURCHASE ADMIN	School	2nd Floor	2011	Door Frame	White	Wood	< LOD : 37.05	< LOD : 6.00	< LOD : 37.05	mg / cm ^2	Positive	Jason Fullum
55	2016-03-23 14:15	SUNY PURCHASE ADMIN	School	2nd Floor	2011	Door-Interior	White	Wood	< LOD : 24.90	< LOD : 22.65	< LOD : 24.90	mg / cm ^2	Positive	Jason Fullum
56	2016-03-23 14:22	SUNY PURCHASE ADMIN	School	2nd Floor	2001	Wall	Purple	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 2.30	mg / cm ^2	Negative	Jason Fullum
57	2016-03-23 14:23	SUNY PURCHASE ADMIN	School	2nd Floor	2001	Door Frame	White	Metal	< LOD : 0.03	< LOD : 0.03	< LOD : 5.65	mg / cm ^2	Negative	Jason Fullum
58	2016-03-23 14:23	SUNY PURCHASE ADMIN	School	2nd Floor	2001	Door-Interior	White	Metal	< LOD : 0.03	< LOD : 0.03	< LOD : 3.38	mg / cm ^2	Negative	Jason Fullum
59	2016-03-23 14:24	SUNY PURCHASE ADMIN	School	2nd Floor	2001	Fireplace	White	Wood	< LOD : 0.14	< LOD : 0.14	< LOD : 1.65	mg / cm ^2	Negative	Jason Fullum
60	2016-03-23 14:42	SUNY PURCHASE ADMIN	School	2nd Floor	2004b	Wall	Beige	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 2.27	mg / cm ^2	Negative	Jason Fullum
61	2016-03-23 14:42	SUNY PURCHASE ADMIN	School	2nd Floor	2004b	Ceiling	White	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 2.27	mg / cm ^2	Negative	Jason Fullum
62	2016-03-23 14:43	SUNY PURCHASE ADMIN	School	2nd Floor	2004b	Window Case	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.93	mg / cm ^2	Negative	Jason Fullum
63	2016-03-23 14:43	SUNY PURCHASE ADMIN	School	2nd Floor	2004b	Window Sash	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.70	mg / cm ^2	Negative	Jason Fullum
64	2016-03-23 14:43	SUNY PURCHASE ADMIN	School	2nd Floor	2004b	Door Frame	White	Wood	< LOD : 0.33	< LOD : 0.33	< LOD : 3.20	mg / cm ^2	Negative	Jason Fullum
65	2016-03-23 14:44	SUNY PURCHASE ADMIN	School	2nd Floor	2004b	Door-Exterior	White	Wood	< LOD : 0.06	< LOD : 0.06	< LOD : 3.10	mg / cm ^2	Negative	Jason Fullum
66	2016-03-23 14:44	SUNY PURCHASE ADMIN	School	2nd Floor	2004b	Trim	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 8.55	mg / cm ^2	Null	Jason Fullum
67	2016-03-23 14:44	SUNY PURCHASE ADMIN	School	2nd Floor	2004b	Trim	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.90	mg / cm ^2	Negative	Jason Fullum
68	2016-03-23 14:45	SUNY PURCHASE ADMIN	School	2nd Floor	2008a	Wall	Green	Plaster	< LOD : 15.60	< LOD : 13.65	< LOD : 15.60	mg / cm ^2	Positive	Jason Fullum
69	2016-03-23 14:46	SUNY PURCHASE ADMIN	School	2nd Floor	2008a	Door Frame	White	Wood	< LOD : 25.05	< LOD : 10.95	< LOD : 25.05	mg / cm ^2	Positive	Jason Fullum
70	2016-03-23 14:46	SUNY PURCHASE ADMIN	School	2nd Floor	2007	Door Frame	White	Wood	2.10 ± 0.90	< LOD : 0.53	2.10 ± 0.90	mg / cm ^2	Positive	Jason Fullum
71	2016-03-23 14:47	SUNY PURCHASE ADMIN	School	2nd Floor	2007	Door-Interior	White	Wood	< LOD : 23.55	< LOD : 17.25	< LOD : 23.55	mg / cm ^2	Positive	Jason Fullum
72	2016-03-23 15:11	SUNY PURCHASE ADMIN	School	3rd Floor	3005	Door-Interior	White	Wood	< LOD : 0.32	< LOD : 0.32	< LOD : 3.46	mg / cm ^2	Negative	Jason Fullum
73	2016-03-23 15:11	SUNY PURCHASE ADMIN	School	3rd Floor	3005	Door Frame	White	Wood	< LOD : 0.09	< LOD : 0.09	< LOD : 2.70	mg / cm ^2	Negative	Jason Fullum
74	2016-03-23 15:11	SUNY PURCHASE ADMIN	School	3rd Floor	3005	Wall	Beige	Plaster	< LOD : 20.70	< LOD : 3.90	< LOD : 20.70	mg / cm ^2	Positive	Jason Fullum
75	2016-03-23 15:12	SUNY PURCHASE ADMIN	School	3rd Floor	3011	Wall	Beige	Plaster	< LOD : 24.75	< LOD : 8.25	< LOD : 24.75	mg / cm ^2	Positive	Jason Fullum
76	2016-03-23 15:13	SUNY PURCHASE ADMIN	School	3rd Floor	3001	Wall	Beige	Plaster	< LOD : 16.20	< LOD : 1.91	< LOD : 16.20	mg / cm ^2	Positive	Jason Fullum
77	2016-03-23 15:13	SUNY PURCHASE ADMIN	School	3rd Floor	3001	Window Case	White	Wood	< LOD : 0.04	< LOD : 0.04	< LOD : 2.85	mg / cm ^2	Negative	Jason Fullum
78	2016-03-23 15:14	SUNY PURCHASE ADMIN	School	3rd Floor	3001	Window Sash	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 3.45	mg / cm ^2	Negative	Jason Fullum
79	2016-03-23 15:14	SUNY PURCHASE ADMIN	School	3rd Floor	3001	Trim	White	Wood	< LOD : 0.41	< LOD : 0.41	< LOD : 1.95	mg / cm ^2	Negative	Jason Fullum
80	2016-03-23 15:15	SUNY PURCHASE ADMIN	School	3rd Floor	3001	Ceiling	White	Plaster	7.50 ± 4.80	< LOD : 3.60	7.50 ± 4.80	mg / cm ^2	Positive	Jason Fullum
81	2016-03-23 15:16	SUNY PURCHASE ADMIN	School	3rd Floor	3011d	Stair Handrail	Varnish	Wood	< LOD : 0.10	< LOD : 0.10	< LOD : 3.75	mg / cm ^2	Negative	Jason Fullum
82	2016-03-23 15:17	SUNY PURCHASE ADMIN	School	3rd Floor	3011d	Radiator	Silver	Metal	< LOD : 0.18	< LOD : 0.18	< LOD : 5.85	mg / cm ^2	Negative	Jason Fullum
83	2016-03-23 15:31	SUNY PURCHASE ADMIN			Calibrate				1.00 ± 0.10	1.00 ± 0.10	0.80 ± 0.30	mg / cm ^2	Positive	Jason Fullum
84	2016-03-23 15:32	SUNY PURCHASE ADMIN			Calibrate				1.00 ± 0.10	1.00 ± 0.10	1.00 ± 0.30	mg / cm ^2	Positive	Jason Fullum
85	2016-03-23 15:33	SUNY PURCHASE ADMIN			Calibrate				1.10 ± 0.10	1.10 ± 0.10	0.80 ± 0.40	mg / cm ^2	Positive	Jason Fullum
86	2016-03-24 08:15	SUNY PURCHASE ADMIN	School		Calibrate				1.10 ± 0.10	1.10 ± 0.10	1.30 ± 0.60	mg / cm ^2	Positive	Jason Fullum
87	2016-03-24 08:16	SUNY PURCHASE ADMIN	School		Calibrate				0.90 ± 0.10	0.90 ± 0.10	1.00 ± 0.60	mg / cm ^2	Negative	Jason Fullum
88	2016-03-24 08:17	SUNY PURCHASE ADMIN	School		Calibrate				1.00 ± 0.10	1.00 ± 0.10	1.20 ± 0.30	mg / cm ^2	Positive	Jason Fullum
89	2016-03-24 08:18	SUNY PURCHASE ADMIN	School	1st Floor	1001b	Wall	Varnish	Wood	< LOD : 0.09	< LOD : 0.09	< LOD : 2.37	mg / cm ^2	Negative	Jason Fullum
90	2016-03-24 08:19	SUNY PURCHASE ADMIN	School	1st Floor	1001b	Fireplace	White	Wood	< LOD : 0.06	< LOD : 0.06	< LOD : 2.27	mg / cm ^2	Negative	Jason Fullum
91	2016-03-24 08:19	SUNY PURCHASE ADMIN	School	1st Floor	1001b	Door-Exterior	Varnish	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.10	mg / cm ^2	Negative	Jason Fullum
92	2016-03-24 08:20	SUNY PURCHASE ADMIN	School	1st Floor	1001	Door-Interior	White	Wood	5.60 ± 3.60	< LOD : 4.50	5.60 ± 3.60	mg / cm ^2	Positive	Jason Fullum
93	2016-03-24 08:21	SUNY PURCHASE ADMIN	School	1st Floor	1001	Wall	Brown	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 2.27	mg / cm ^2	Negative	Jason Fullum
94	2016-03-24 08:22	SUNY PURCHASE ADMIN	School	1st Floor	1001	Window Case	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.77	mg / cm ^2	Negative	Jason Fullum
95	2016-03-24 08:22	SUNY PURCHASE ADMIN	School	1st Floor	1001	Fireplace	White	Wood	< LOD : 0.07	< LOD : 0.07	< LOD : 2.49	mg / cm ^2	Negative	Jason Fullum
96	2016-03-24 08:33	SUNY PURCHASE ADMIN	School	1st Floor	1001a	Wall	Varnish	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.55	mg / cm ^2	Negative	Jason Fullum
97	2016-03-24 08:33	SUNY PURCHASE ADMIN	School	1st Floor	1001a	Wall	White	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 1.97	mg / cm ^2	Negative	Jason Fullum
98	2016-03-24 08:41	SUNY PURCHASE ADMIN	School	1st Floor	1001c	Wall	Beige	Plaster	< LOD : 20.85	< LOD : 8.25	< LOD : 20.85	mg / cm ^2	Positive	Jason Fullum
99	2016-03-24 08:41	SUNY PURCHASE ADMIN	School	1st Floor	1001c	Wall	White	Wood	< LOD : 38.25	< LOD : 10.35	< LOD : 38.25	mg / cm ^2	Positive	Jason Fullum
100	2016-03-24 08:42	SUNY PURCHASE ADMIN	School	1st Floor	1001c	Door Frame	White	Wood	< LOD : 29.85	< LOD : 8.40	< LOD : 29.85	mg / cm ^2	Positive	Jason Fullum
101	2016-03-24 08:42	SUNY PURCHASE ADMIN	School	1st Floor	1001c	Door-Exterior	White	Wood	< LOD : 24.60	< LOD : 435.00	< LOD : 24.60	mg / cm ^2	Positive	Jason Fullum
102	2016-03-24 09:52	SUNY PURCHASE HR	School	3rd Floor	3004	Stair Newel	White	Wood	< LOD : 14.55	< LOD : 21.00	< LOD : 14.55	mg / cm ^2	Positive	Jason Fullum
103	2016-03-24 09:52	SUNY PURCHASE HR	School	3rd Floor	3004	Stair Baluster	White	Wood	< LOD : 14.10	< LOD : 22.95	< LOD : 14.10	mg / cm ^2	Positive	Jason Fullum
104	2016-03-24 09:52	SUNY PURCHASE HR	School	3rd Floor	3004	Wall	White	Plaster	5.80 ± 3.80	< LOD : 6.45	5.80 ± 3.80	mg / cm ^2	Positive	Jason Fullum

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Index	Time	Site	Space Type	Floor	Room	Component	Color	Substrate	PbC	PbL	PbK	Units	Results	Inspector
105	2016-03-24 09:53	SUNY PURCHASE HR	School	3rd Floor	3004	Door Frame	White	Wood	< LOD : 19.65	< LOD : 25.95	< LOD : 19.65	mg / cm ^2	Positive	Jason Fullum
106	2016-03-24 09:53	SUNY PURCHASE HR	School	3rd Floor	3004	Door-Interior	White	Wood	< LOD : 15.15	< LOD : 55.50	< LOD : 15.15	mg / cm ^2	Positive	Jason Fullum
107	2016-03-24 09:53	SUNY PURCHASE HR	School	3rd Floor	3004	Ceiling	White	Plaster	< LOD : 4.50	4.60 ± 3.00	< LOD : 4.50	mg / cm ^2	Positive	Jason Fullum
108	2016-03-24 09:54	SUNY PURCHASE HR	School	3rd Floor	3004	Window Case	White	Wood	< LOD : 18.00	< LOD : 13.50	< LOD : 18.00	mg / cm ^2	Positive	Jason Fullum
109	2016-03-24 09:55	SUNY PURCHASE HR	School	3rd Floor	3001	Wall	White	Plaster	< LOD : 0.07	< LOD : 0.07	< LOD : 2.23	mg / cm ^2	Negative	Jason Fullum
110	2016-03-24 09:56	SUNY PURCHASE HR	School	3rd Floor	3001	Wall	White	Plaster	< LOD : 0.04	< LOD : 0.04	< LOD : 1.05	mg / cm ^2	Negative	Jason Fullum
111	2016-03-24 09:56	SUNY PURCHASE HR	School	3rd Floor	3001	Window Case	White	Wood	< LOD : 0.14	< LOD : 0.14	< LOD : 2.85	mg / cm ^2	Negative	Jason Fullum
112	2016-03-24 09:57	SUNY PURCHASE HR	School	3rd Floor	3002	Window Case	White	Wood	< LOD : 18.30	< LOD : 6.75	< LOD : 18.30	mg / cm ^2	Positive	Jason Fullum
113	2016-03-24 09:57	SUNY PURCHASE HR	School	3rd Floor	3002	Wall	White	Plaster	0.06 ± 0.03	0.06 ± 0.03	< LOD : 0.75	mg / cm ^2	Null	Jason Fullum
114	2016-03-24 09:59	SUNY PURCHASE HR	School	3rd Floor	3002	Wall	White	Plaster	0.10 ± 0.03	0.10 ± 0.03	0.80 ± 0.30	mg / cm ^2	Negative	Jason Fullum
115	2016-03-24 09:59	SUNY PURCHASE HR	School	3rd Floor	3002	Door Frame	White	Wood	< LOD : 13.80	< LOD : 14.25	< LOD : 13.80	mg / cm ^2	Positive	Jason Fullum
116	2016-03-24 09:59	SUNY PURCHASE HR	School	3rd Floor	3002	Door-Interior	White	Wood	< LOD : 19.95	< LOD : 11.55	< LOD : 19.95	mg / cm ^2	Positive	Jason Fullum
117	2016-03-24 10:06	SUNY PURCHASE HR	School	3rd Floor	2001	Wall	Beige	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 1.35	mg / cm ^2	Negative	Jason Fullum
118	2016-03-24 10:07	SUNY PURCHASE HR	School	3rd Floor	2001	Door Frame	White	Wood	< LOD : 14.70	< LOD : 12.75	< LOD : 14.70	mg / cm ^2	Positive	Jason Fullum
119	2016-03-24 10:07	SUNY PURCHASE HR	School	3rd Floor	2001	Door-Interior	White	Wood	< LOD : 9.15	< LOD : 9.15	< LOD : 49.35	mg / cm ^2	Null	Jason Fullum
120	2016-03-24 10:07	SUNY PURCHASE HR	School	3rd Floor	2001	Door-Interior	White	Wood	< LOD : 20.70	< LOD : 6.45	< LOD : 20.70	mg / cm ^2	Positive	Jason Fullum
121	2016-03-24 10:08	SUNY PURCHASE HR	School	3rd Floor	2002	Wall	White	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 2.14	mg / cm ^2	Negative	Jason Fullum
122	2016-03-24 10:08	SUNY PURCHASE HR	School	3rd Floor	2002	Window Case	White	Wood	< LOD : 16.50	< LOD : 19.65	< LOD : 16.50	mg / cm ^2	Positive	Jason Fullum
123	2016-03-24 10:09	SUNY PURCHASE HR	School	3rd Floor	2002	Trim	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 1.92	mg / cm ^2	Negative	Jason Fullum
124	2016-03-24 10:10	SUNY PURCHASE HR	School	3rd Floor	2003	Wall	Beige	Plaster	< LOD : 16.50	< LOD : 1.74	< LOD : 16.50	mg / cm ^2	Positive	Jason Fullum
125	2016-03-24 10:10	SUNY PURCHASE HR	School	2nd Floor	2003	Door Frame	White	Wood	< LOD : 20.70	< LOD : 11.10	< LOD : 20.70	mg / cm ^2	Positive	Jason Fullum
126	2016-03-24 10:11	SUNY PURCHASE HR	School	2nd Floor	2003	Door-Interior	White	Wood	< LOD : 19.35	< LOD : 8.25	< LOD : 19.35	mg / cm ^2	Positive	Jason Fullum
127	2016-03-24 10:18	SUNY PURCHASE HR	School	2nd Floor	2006	Wall	Beige	Plaster	< LOD : 0.05	< LOD : 0.05	< LOD : 2.14	mg / cm ^2	Negative	Jason Fullum
128	2016-03-24 10:18	SUNY PURCHASE HR	School	2nd Floor	2006	Wall	Beige	Plaster	< LOD : 0.04	< LOD : 0.04	< LOD : 2.11	mg / cm ^2	Negative	Jason Fullum
129	2016-03-24 10:19	SUNY PURCHASE HR	School	2nd Floor	2006	Ceiling	White	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 1.88	mg / cm ^2	Negative	Jason Fullum
130	2016-03-24 10:19	SUNY PURCHASE HR	School	2nd Floor	2005	Wall	White	Plaster	< LOD : 0.04	< LOD : 0.04	< LOD : 2.33	mg / cm ^2	Negative	Jason Fullum
131	2016-03-24 10:20	SUNY PURCHASE HR	School	2nd Floor	2005	Door Frame	White	Metal	< LOD : 0.03	< LOD : 0.03	< LOD : 5.40	mg / cm ^2	Negative	Jason Fullum
132	2016-03-24 10:20	SUNY PURCHASE HR	School	2nd Floor	2005	Door-Interior	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.20	mg / cm ^2	Negative	Jason Fullum
133	2016-03-24 10:54	SUNY PURCHASE HR	School	2nd Floor	1001	Wall	Beige	Plaster	< LOD : 25.50	< LOD : 3.90	< LOD : 25.50	mg / cm ^2	Positive	Jason Fullum
134	2016-03-24 10:55	SUNY PURCHASE HR	School	1st Floor	1001	Window Case	White	Wood	< LOD : 0.59	< LOD : 0.59	< LOD : 1.80	mg / cm ^2	Negative	Jason Fullum
135	2016-03-24 10:55	SUNY PURCHASE HR	School	1st Floor	1001	Fireplace	White	Wood	< LOD : 0.13	< LOD : 0.13	< LOD : 1.80	mg / cm ^2	Negative	Jason Fullum
136	2016-03-24 10:55	SUNY PURCHASE HR	School	1st Floor	1001	Trim	White	Wood	< LOD : 0.84	< LOD : 0.84	< LOD : 2.85	mg / cm ^2	Negative	Jason Fullum
137	2016-03-24 10:56	SUNY PURCHASE HR	School	1st Floor	1003	Wall	Beige	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 1.95	mg / cm ^2	Negative	Jason Fullum
138	2016-03-24 10:57	SUNY PURCHASE HR	School	1st Floor	1003	Wall	Beige	Plaster	< LOD : 11.25	< LOD : 1.14	< LOD : 11.25	mg / cm ^2	Positive	Jason Fullum
139	2016-03-24 10:58	SUNY PURCHASE HR	School	1st Floor	1003a	Wall	White	Plaster	1.10 ± 0.30	0.30 ± 0.11	1.10 ± 0.30	mg / cm ^2	Null	Jason Fullum
140	2016-03-24 10:59	SUNY PURCHASE HR	School	1st Floor	1003a	Door Frame	White	Wood	< LOD : 15.75	< LOD : 7.50	< LOD : 15.75	mg / cm ^2	Positive	Jason Fullum
141	2016-03-24 10:59	SUNY PURCHASE HR	School	1st Floor	1003a	Door-Interior	White	Wood	< LOD : 20.10	< LOD : 6.60	< LOD : 20.10	mg / cm ^2	Positive	Jason Fullum
142	2016-03-24 11:00	SUNY PURCHASE HR	School	1st Floor	1003a	Ceiling	White	Plaster	0.40 ± 0.20	0.40 ± 0.20	1.10 ± 0.50	mg / cm ^2	Null	Jason Fullum
143	2016-03-24 11:01	SUNY PURCHASE HR	School	1st Floor	1003a	Ceiling	White	Plaster	0.27 ± 0.08	0.27 ± 0.08	0.90 ± 0.30	mg / cm ^2	Negative	Jason Fullum
144	2016-03-24 11:02	SUNY PURCHASE HR	School	1st Floor	1004	Wall	Beige	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 1.90	mg / cm ^2	Negative	Jason Fullum
145	2016-03-24 11:02	SUNY PURCHASE HR	School	1st Floor	1004	Door Frame	White	Wood	< LOD : 0.11	< LOD : 0.11	< LOD : 1.80	mg / cm ^2	Negative	Jason Fullum
146	2016-03-24 11:02	SUNY PURCHASE HR	School	1st Floor	1004	Door-Exterior	Blue	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.70	mg / cm ^2	Negative	Jason Fullum
147	2016-03-24 11:03	SUNY PURCHASE HR	School	1st Floor	1002	Wall	Beige	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 1.95	mg / cm ^2	Negative	Jason Fullum
148	2016-03-24 11:04	SUNY PURCHASE HR	School	1st Floor	1002	Door Frame	White	Wood	< LOD : 0.04	< LOD : 0.04	< LOD : 2.53	mg / cm ^2	Negative	Jason Fullum
149	2016-03-24 11:04	SUNY PURCHASE HR	School	1st Floor	1002	Door-Interior	White	Wood	< LOD : 0.33	< LOD : 0.33	< LOD : 1.88	mg / cm ^2	Negative	Jason Fullum
150	2016-03-24 12:38	SUNY PURCHASE HR	School		Calibrate				1.40 ± 0.40	1.00 ± 0.10	1.40 ± 0.40	mg / cm ^2	Positive	Jason Fullum
151	2016-03-24 12:40	SUNY PURCHASE HR	School		Calibrate				1.50 ± 0.50	1.00 ± 0.10	1.50 ± 0.50	mg / cm ^2	Positive	Jason Fullum
152	2016-03-24 12:41	SUNY PURCHASE HR	School		Calibrate				1.00 ± 0.10	1.00 ± 0.10	1.30 ± 0.30	mg / cm ^2	Positive	Jason Fullum
153	2016-03-24 12:41	SUNY PURCHASE HR	School		Calibrate				1.10 ± 0.10	1.10 ± 0.10	1.40 ± 0.50	mg / cm ^2	Positive	Jason Fullum
154	2016-03-24 12:42	SUNY PURCHASE HR	School		Calibrate				1.10 ± 0.10	1.10 ± 0.10	1.40 ± 0.50	mg / cm ^2	Positive	Jason Fullum
155	2016-03-24 12:46	SUNY PURCHASE ANNEX	School	1st Floor	1001	Wall	White	Plaster	< LOD : 13.20	< LOD : 3.90	< LOD : 13.20	mg / cm ^2	Positive	Jason Fullum
156	2016-03-24 12:46	SUNY PURCHASE ANNEX	School	1st Floor	1002	Wall	Beige	Plaster	< LOD : 0.03	< LOD : 0.03	< LOD : 2.08	mg / cm ^2	Negative	Jason Fullum

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Index	Time	Site	Space Type	Floor	Room	Component	Color	Substrate	PbC	PbL	PbK	Units	Results	Inspector
157	2016-03-24 12:47	SUNY PURCHASE ANNEX	School	1st Floor	1002	Wall	Beige	Plaster	< LOD : 11.40	< LOD : 0.03	< LOD : 11.40	mg / cm ^2	Positive	Jason Fullum
158	2016-03-24 12:47	SUNY PURCHASE ANNEX	School	1st Floor	1002	Window Case	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 1.83	mg / cm ^2	Negative	Jason Fullum
159	2016-03-24 12:48	SUNY PURCHASE ANNEX	School	1st Floor	1002	Door Frame	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.85	mg / cm ^2	Negative	Jason Fullum
160	2016-03-24 12:48	SUNY PURCHASE ANNEX	School	1st Floor	1002	Ceiling	White	Plaster	< LOD : 9.00	< LOD : 9.00	< LOD : 14.25	mg / cm ^2	Null	Jason Fullum
161	2016-03-24 12:49	SUNY PURCHASE ANNEX	School	1st Floor	1002	Ceiling	White	Plaster	< LOD : 3.90	< LOD : 2.25	< LOD : 3.90	mg / cm ^2	Positive	Jason Fullum
162	2016-03-24 12:50	SUNY PURCHASE ANNEX	School	Basement	0001	Wall	White	Drywall	< LOD : 0.03	< LOD : 0.03	< LOD : 1.65	mg / cm ^2	Negative	Jason Fullum
163	2016-03-24 12:51	SUNY PURCHASE ANNEX	School	Basement	0001	Stair Tread	Gray	Wood	< LOD : 0.11	< LOD : 0.11	< LOD : 3.60	mg / cm ^2	Negative	Jason Fullum
164	2016-03-24 12:51	SUNY PURCHASE ANNEX	School	Basement	0001	Stair Handrail	Gray	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 3.18	mg / cm ^2	Negative	Jason Fullum
165	2016-03-24 12:55	SUNY PURCHASE ANNEX	School	Basement	0001	Support Beam	Black	Metal	< LOD : 0.09	< LOD : 0.09	< LOD : 3.75	mg / cm ^2	Negative	Jason Fullum
166	2016-03-24 15:34	SUNY PURCHASE GH	School	1st Floor	Living Room	Wall	Yellow	Plaster	< LOD : 19.35	< LOD : 0.67	< LOD : 19.35	mg / cm ^2	Positive	Jason Fullum
167	2016-03-24 15:35	SUNY PURCHASE GH	School	1st Floor	Living Room	Door Frame	Yellow	Wood	< LOD : 27.00	< LOD : 5.10	< LOD : 27.00	mg / cm ^2	Positive	Jason Fullum
168	2016-03-24 15:35	SUNY PURCHASE GH	School	1st Floor	Living Room	Door-Interior	Yellow	Wood	< LOD : 7.65	< LOD : 7.65	< LOD : 33.45	mg / cm ^2	Null	Jason Fullum
169	2016-03-24 15:35	SUNY PURCHASE GH	School	1st Floor	Living Room	Door-Interior	Yellow	Wood	< LOD : 27.15	< LOD : 5.85	< LOD : 27.15	mg / cm ^2	Positive	Jason Fullum
170	2016-03-24 15:36	SUNY PURCHASE GH	School	1st Floor	Kitchen	Wall	Yellow	Plaster	< LOD : 25.65	< LOD : 5.85	< LOD : 25.65	mg / cm ^2	Positive	Jason Fullum
171	2016-03-24 15:36	SUNY PURCHASE GH	School	1st Floor	Kitchen	Window Case	Yellow	Wood	< LOD : 28.20	< LOD : 14.25	< LOD : 28.20	mg / cm ^2	Positive	Jason Fullum
172	2016-03-24 15:37	SUNY PURCHASE GH	School	1st Floor	Kitchen	Window Sash	Yellow	Wood	< LOD : 29.25	< LOD : 9.15	< LOD : 29.25	mg / cm ^2	Positive	Jason Fullum
173	2016-03-24 15:37	SUNY PURCHASE GH	School	1st Floor	Kitchen	Cabinet	Yellow	Wood	< LOD : 24.90	< LOD : 9.15	< LOD : 24.90	mg / cm ^2	Positive	Jason Fullum
174	2016-03-24 15:37	SUNY PURCHASE GH	School	1st Floor	Kitchen	Window Case	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 1.65	mg / cm ^2	Negative	Jason Fullum
175	2016-03-24 15:38	SUNY PURCHASE GH	School	1st Floor	Living Room	Wall	White	Plaster	< LOD : 22.35	< LOD : 0.71	< LOD : 22.35	mg / cm ^2	Positive	Jason Fullum
176	2016-03-24 15:39	SUNY PURCHASE GH	School	1st Floor	Living Room	Door-Exterior	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 1.80	mg / cm ^2	Negative	Jason Fullum
177	2016-03-24 15:42	SUNY PURCHASE GH	School	2nd Floor	Bedroom #1	Wall	White	Plaster	< LOD : 23.85	< LOD : 0.76	< LOD : 23.85	mg / cm ^2	Positive	Jason Fullum
178	2016-03-24 15:42	SUNY PURCHASE GH	School	2nd Floor	Bedroom #1	Window Case	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 1.95	mg / cm ^2	Negative	Jason Fullum
179	2016-03-24 15:43	SUNY PURCHASE GH	School	2nd Floor	Bedroom #1	Wall	White	Drywall	< LOD : 0.03	< LOD : 0.03	< LOD : 2.30	mg / cm ^2	Negative	Jason Fullum
180	2016-03-24 15:43	SUNY PURCHASE GH	School	2nd Floor	Bathroom #1	Door Frame	White	Wood	< LOD : 25.80	< LOD : 6.60	< LOD : 25.80	mg / cm ^2	Positive	Jason Fullum
181	2016-03-24 15:43	SUNY PURCHASE GH	School	2nd Floor	Bathroom #1	Door-Interior	White	Wood	< LOD : 19.65	< LOD : 13.50	< LOD : 19.65	mg / cm ^2	Positive	Jason Fullum
182	2016-03-24 15:47	SUNY PURCHASE GH	School		Calibrate				1.10 ± 0.10	1.10 ± 0.10	1.40 ± 0.50	mg / cm ^2	Positive	Jason Fullum
183	2016-03-24 15:47	SUNY PURCHASE GH	School		Calibrate				1.20 ± 0.40	1.20 ± 0.40	< LOD : 3.30	mg / cm ^2	Null	Jason Fullum
184	2016-03-24 15:47	SUNY PURCHASE GH	School		Calibrate				0.90 ± 0.50	0.90 ± 0.50	< LOD : 5.10	mg / cm ^2	Null	Jason Fullum
185	2016-03-25 10:29				Calibrate				1.00 ± 0.10	1.00 ± 0.10	1.30 ± 0.30	mg / cm ^2	Positive	Jason Fullum
186	2016-03-25 10:29				Calibrate				0.90 ± 0.10	0.90 ± 0.10	< LOD : 0.90	mg / cm ^2	Negative	Jason Fullum
187	2016-03-25 10:30				Calibrate				1.40 ± 0.30	1.00 ± 0.10	1.40 ± 0.30	mg / cm ^2	Positive	Jason Fullum
188	2016-03-25 10:31				Calibrate				1.00 ± 0.10	1.00 ± 0.10	1.00 ± 0.30	mg / cm ^2	Positive	Jason Fullum
189	2016-03-25 10:33	SUNY PURCHASE FAC	School	2nd Floor	2001a	Wall	White	Wood	< LOD : 20.85	< LOD : 12.00	< LOD : 20.85	mg / cm ^2	Positive	Jason Fullum
190	2016-03-25 10:33	SUNY PURCHASE FAC	School	2nd Floor	2001a	Door Frame	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 1.80	mg / cm ^2	Negative	Jason Fullum
191	2016-03-25 10:34	SUNY PURCHASE FAC	School	2nd Floor		Wall	White	Drywall	< LOD : 0.04	< LOD : 0.04	< LOD : 1.50	mg / cm ^2	Negative	Jason Fullum
192	2016-03-25 10:35	SUNY PURCHASE FAC	School	2nd Floor		Ceiling	White	Wood	< LOD : 0.16	< LOD : 0.16	< LOD : 0.75	mg / cm ^2	Negative	Jason Fullum
193	2016-03-25 10:35	SUNY PURCHASE FAC	School	2nd Floor		Window Case	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.40	mg / cm ^2	Negative	Jason Fullum
194	2016-03-25 10:36	SUNY PURCHASE FAC	School	2nd Floor		Stair Newel	White	Wood	< LOD : 17.40	< LOD : 9.45	< LOD : 17.40	mg / cm ^2	Positive	Jason Fullum
195	2016-03-25 10:36	SUNY PURCHASE FAC	School	2nd Floor		Stair Baluster	White	Wood	< LOD : 21.75	< LOD : 9.30	< LOD : 21.75	mg / cm ^2	Positive	Jason Fullum
196	2016-03-25 10:38	SUNY PURCHASE FAC	School	1st Floor	1006	Wall	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.49	mg / cm ^2	Negative	Jason Fullum
197	2016-03-25 10:38	SUNY PURCHASE FAC	School	1st Floor	1006	Door Frame	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 3.24	mg / cm ^2	Negative	Jason Fullum
198	2016-03-25 10:38	SUNY PURCHASE FAC	School	1st Floor	1006	Door-Interior	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 3.05	mg / cm ^2	Negative	Jason Fullum
199	2016-03-25 10:39	SUNY PURCHASE FAC	School	1st Floor	Corridor	Wall	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 3.59	mg / cm ^2	Negative	Jason Fullum
200	2016-03-25 10:39	SUNY PURCHASE FAC	School	1st Floor	Corridor	Window Case	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 3.15	mg / cm ^2	Negative	Jason Fullum
201	2016-03-25 10:39	SUNY PURCHASE FAC	School	1st Floor	Corridor	Window Sash	White	Wood	< LOD : 0.10	< LOD : 0.10	< LOD : 3.00	mg / cm ^2	Negative	Jason Fullum
202	2016-03-25 10:40	SUNY PURCHASE FAC	School	1st Floor	1001	Ceiling	White	Drywall	< LOD : 0.03	< LOD : 0.03	< LOD : 2.27	mg / cm ^2	Negative	Jason Fullum
203	2016-03-25 10:40	SUNY PURCHASE FAC	School	1st Floor	1001	Wall	Yellow	Drywall	< LOD : 0.03	< LOD : 0.03	< LOD : 2.00	mg / cm ^2	Negative	Jason Fullum
204	2016-03-25 10:41	SUNY PURCHASE FAC	School	1st Floor	1001	Window Case	Brown	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 1.95	mg / cm ^2	Negative	Jason Fullum
205	2016-03-25 10:44	SUNY PURCHASE FAC	School	1st Floor	Exterior	Door Frame	Gray	Wood	< LOD : 0.16	< LOD : 0.16	< LOD : 2.42	mg / cm ^2	Negative	Jason Fullum
206	2016-03-25 10:45	SUNY PURCHASE FAC	School	1st Floor	Exterior	Door-Exterior	Gray	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 3.84	mg / cm ^2	Negative	Jason Fullum
207	2016-03-25 10:45	SUNY PURCHASE FAC	School	1st Floor	Exterior	Wall	White	Concrete	< LOD : 5.70	< LOD : 0.09	< LOD : 5.70	mg / cm ^2	Positive	Jason Fullum
208	2016-03-25 10:46	SUNY PURCHASE FAC	School	1st Floor	Exterior	Window Case	Gray	Wood	< LOD : 0.07	< LOD : 0.07	< LOD : 3.22	mg / cm ^2	Negative	Jason Fullum

SUNY Purchase

Index	Time	Site	Space Type	Floor	Room	Component	Color	Substrate	PbC	PbL	PbK	Units	Results	Inspector
209	2016-03-25 10:51	SUNY PURCHASE FAC	School	1st Floor	Exterior	Stair Stringer	Black	Metal	< LOD : 0.11	< LOD : 0.11	< LOD : 5.75	mg / cm ^2	Negative	Jason Fullum
210	2016-03-25 10:51	SUNY PURCHASE FAC	School	1st Floor	Exterior	Stair Handrail	Black	Metal	< LOD : 0.06	< LOD : 0.06	< LOD : 6.08	mg / cm ^2	Negative	Jason Fullum
211	2016-03-25 10:59	SUNY PURCHASE FAC	School	1st Floor	Exterior	Wall	White	Wood	4.20 ± 2.20	4.20 ± 2.20	5.80 ± 3.50	mg / cm ^2	Positive	Jason Fullum
212	2016-03-25 11:05	SUNY PURCHASE ANNEX	School	1st Floor	Exterior	Wall	White	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.70	mg / cm ^2	Negative	Jason Fullum
213	2016-03-25 11:05	SUNY PURCHASE ANNEX	School	1st Floor	Exterior	Window Case	Green	Wood	< LOD : 0.05	< LOD : 0.05	< LOD : 3.15	mg / cm ^2	Negative	Jason Fullum
214	2016-03-25 11:06	SUNY PURCHASE ANNEX	School	1st Floor	Exterior	Door Frame	Green	Wood	< LOD : 0.07	< LOD : 0.07	< LOD : 3.00	mg / cm ^2	Negative	Jason Fullum
215	2016-03-25 11:06	SUNY PURCHASE ANNEX	School	1st Floor	Exterior	Door-Exterior	Green	Metal	< LOD : 0.04	< LOD : 0.04	< LOD : 3.15	mg / cm ^2	Negative	Jason Fullum
216	2016-03-25 11:07	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Door-Exterior	Green	Metal	< LOD : 0.03	< LOD : 0.03	< LOD : 2.88	mg / cm ^2	Negative	Jason Fullum
217	2016-03-25 11:07	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Door Frame	Green	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 3.45	mg / cm ^2	Negative	Jason Fullum
218	2016-03-25 11:07	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Wall	White	Wood	< LOD : 46.95	< LOD : 136.50	< LOD : 46.95	mg / cm ^2	Positive	Jason Fullum
219	2016-03-25 11:08	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Window Case	Green	Wood	< LOD : 0.56	< LOD : 0.56	< LOD : 3.83	mg / cm ^2	Negative	Jason Fullum
220	2016-03-25 11:08	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Stair Handrail	Black	Metal	< LOD : 0.03	< LOD : 0.03	< LOD : 4.29	mg / cm ^2	Negative	Jason Fullum
221	2016-03-25 11:09	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Wall	White	CMU Block	< LOD : 0.03	< LOD : 0.03	< LOD : 1.35	mg / cm ^2	Negative	Jason Fullum
222	2016-03-25 11:10	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Door Frame	Gray	Metal	< LOD : 0.03	< LOD : 0.03	< LOD : 4.31	mg / cm ^2	Negative	Jason Fullum
223	2016-03-25 11:10	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Door-Exterior	Gray	Metal	< LOD : 0.03	< LOD : 0.03	< LOD : 3.81	mg / cm ^2	Negative	Jason Fullum
224	2016-03-25 11:11	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Wall	White	Brick	0.12 ± 0.05	0.12 ± 0.05	< LOD : 1.05	mg / cm ^2	Negative	Jason Fullum
225	2016-03-25 11:12	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Wall	White	Wood	< LOD : 0.04	< LOD : 0.04	< LOD : 2.97	mg / cm ^2	Negative	Jason Fullum
226	2016-03-25 11:12	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Stair Stringer	Gray	Metal	< LOD : 0.27	< LOD : 0.27	< LOD : 4.48	mg / cm ^2	Negative	Jason Fullum
227	2016-03-25 11:13	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Column	Gray	Metal	1.40 ± 0.30	1.40 ± 0.30	< LOD : 1.80	mg / cm ^2	Positive	Jason Fullum
228	2016-03-25 11:14	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Stair Newel	Gray	Metal	< LOD : 0.03	< LOD : 0.03	< LOD : 4.12	mg / cm ^2	Negative	Jason Fullum
229	2016-03-25 11:15	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Wall	White	Wood	< LOD : 0.22	< LOD : 0.22	< LOD : 2.40	mg / cm ^2	Negative	Jason Fullum
230	2016-03-25 11:15	SUNY PURCHASE ADMIN	School	1st Floor	Exterior	Column	Gray	Wood	< LOD : 0.45	< LOD : 0.45	< LOD : 2.25	mg / cm ^2	Negative	Jason Fullum
231	2016-03-25 11:16	SUNY PURCHASE HR	School	1st Floor	Exterior	Wall	White	Wood	< LOD : 54.75	< LOD : 7.05	< LOD : 54.75	mg / cm ^2	Positive	Jason Fullum
232	2016-03-25 11:16	SUNY PURCHASE HR	School	1st Floor	Exterior	Door Frame	Blue	Wood	< LOD : 56.40	< LOD : 9.30	< LOD : 56.40	mg / cm ^2	Positive	Jason Fullum
233	2016-03-25 11:17	SUNY PURCHASE HR	School	1st Floor	Exterior	Door-Exterior	Blue	Wood	< LOD : 48.75	< LOD : 12.90	< LOD : 48.75	mg / cm ^2	Positive	Jason Fullum
234	2016-03-25 11:17	SUNY PURCHASE HR	School	1st Floor	Exterior	Column	Blue	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 1.80	mg / cm ^2	Negative	Jason Fullum
235	2016-03-25 11:18	SUNY PURCHASE HR	School	1st Floor	Exterior	Wall	White	Brick	1.80 ± 0.80	0.60 ± 0.20	1.80 ± 0.80	mg / cm ^2	Positive	Jason Fullum
236	2016-03-25 11:18	SUNY PURCHASE HR	School	1st Floor	Exterior	Window Case	Blue	Wood	4.30 ± 2.30	4.30 ± 2.30	< LOD : 4.50	mg / cm ^2	Positive	Jason Fullum
237	2016-03-25 11:19	SUNY PURCHASE HR	School	1st Floor	Exterior	Door Frame	Blue	Wood	2.80 ± 1.70	< LOD : 1.05	2.80 ± 1.70	mg / cm ^2	Positive	Jason Fullum
238	2016-03-25 11:23	SUNY PURCHASE GH	School	1st Floor	Exterior	Door Frame	Gray	Wood	< LOD : 0.03	< LOD : 0.03	< LOD : 2.16	mg / cm ^2	Negative	Jason Fullum
239	2016-03-25 11:23	SUNY PURCHASE GH	School	1st Floor	Exterior	Door-Exterior	Gray	Wood	< LOD : 0.04	< LOD : 0.04	< LOD : 2.95	mg / cm ^2	Negative	Jason Fullum
240	2016-03-25 11:24	SUNY PURCHASE GH	School	1st Floor	Exterior	Window Case	Gray	Wood	< LOD : 0.07	< LOD : 0.07	< LOD : 1.80	mg / cm ^2	Negative	Jason Fullum
241	2016-03-25 11:24	SUNY PURCHASE GH	School	1st Floor	Exterior	Wall	White	Wood	< LOD : 0.56	< LOD : 0.56	< LOD : 1.95	mg / cm ^2	Negative	Jason Fullum
242	2016-03-25 11:25	SUNY PURCHASE GH	School	1st Floor	Exterior	Wall	White	Wood	0.50 ± 0.30	0.50 ± 0.30	< LOD : 2.70	mg / cm ^2	Negative	Jason Fullum
243	2016-03-25 11:34				Calibrate				1.10 ± 0.10	1.10 ± 0.10	0.90 ± 0.50	mg / cm ^2	Positive	Jason Fullum
244	2016-03-25 11:36				Calibrate				1.00 ± 0.10	1.00 ± 0.10	0.80 ± 0.30	mg / cm ^2	Positive	Jason Fullum
245	2016-03-25 11:36				Calibrate				1.10 ± 0.10	1.10 ± 0.10	0.80 ± 0.50	mg / cm ^2	Positive	Jason Fullum

APPENDIX E

PERSONNEL AND LABORATORY CERTIFICATIONS

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

Adelaide Environmental Health Associates, Inc.
Suite C24
1511 Route 22

Brewster, NY 10509

FILE NUMBER: 99-0656
LICENSE NUMBER: 29305
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 07/18/2019
EXPIRATION DATE: 07/31/2020

Duly Authorized Representative – John Soter:

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.

Eileen M. Franko, Director
For the Commissioner of Labor

SH 432 (8/12)

United States Environmental Protection Agency

This is to certify that

Adelaide Environmental Health Associates, Inc

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint renovation, repair, and painting activities pursuant to 40 CFR Part 745.89

In the Jurisdiction of:

All EPA Administered States, Tribes, and Territories

This certification is valid from the date of issuance and expires December 05, 2022

NAT-15081-2

Certification #

June 21, 2017

Issued On

Michelle Price, Chief

Lead, Heavy Metals, and Inorganics Branch

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE

N.Y.S

DAVID SEDDON
CLASS(EXPIRES)
C ATEC(12/19) D INSP(12/19)
E MGPL(12/19) H PM (12/19)

CERT# 09-08546
DMV# 879533539

MUST BE CARRIED ON ASBESTOS PROJECTS

01213 004874201 90

EYES BRO
HAIR BRO
HGT 5' 10"

IF FOUND RETURN TO:
NYSDOL - L&C UNIT
ROOM 161A BUILDING 12
STATE OFFICE CAMPUS
ALBANY NY 12240

United States Environmental Protection Agency

This is to certify that

Jason P Fullum

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 July 11, 2020

LBP-R-12098-1

Certification #

April 18, 2017

Issued On

John Gorman, Chief

Pesticides & Toxic Substances Branch

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2020
Issued April 01, 2019

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. PAUL J. MUCHA
AMERICA SCIENCE TEAM NEW YORK, INC
117 EAST 30TH ST
NEW YORK, NY 10016

NY Lab Id No: 11480

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

Serial No.: 59674

SECTION 04 01 20

MASONRY CLEANING AND RESTORATION

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. The extent of the work is indicated on the drawings and herein and includes:

1. Cleaning painted brick and CMU masonry

2. Repairs to brick masonry, including but not necessarily limited to:

a. Replacement of broken, damaged or missing brick units

b. Resetting loose or displaced brick units

c. Repointing 100% of the brick masonry

3. Repairs to CMU masonry

B. It is the intent of the cleaning work to remove all paint that is not fully adhered to the masonry, as well as any and all sealants, biological growth, and salts on the masonry. Overall standard of cleanliness to be determined by the approved testing, with minimal damage to the surface of the masonry. Specific cleaning method(s), herein specified generically, will be determined following submittals and cleaning tests on the building.

C. Masonry restoration work is intended to be comprehensive for all brick chimneys and brick base around the building with respect to the typical repairs shown or specified, whether areas of repair are located on the drawings, or not.

1.2 RELATED SECTIONS

A. Painting - Section 09 90 00

B. Brick Paving – Section 32 14 00

1.3 QUALITY ASSURANCE

A. All work to be done by workmen skilled and experienced in the type of work specified. No allowance will be made in the acceptance or rejection of work for lack of skill on the part of workmen. Firm shall have not less than 5 years successful experience in cleaning and/or related restoration work on historic masonry.

1. One skilled journeyman mason shall be present at all times during masonry work and shall personally direct the work.

2. Only one workman shall oversee all mortar mixing for the entire project, and shall be responsible for proper mixing methods and consistency of the mix throughout the work.

B. Mortar: It is the intent of the specification that mortar shall be compatible with the historic brick and compatible in properties to the original brick masonry mortar. Mortar shall match the color and texture of the original mortar on the building.

1. Mortar joint profile shall match the original joint profile for the masonry element (chimney, wall base), or if original profile cannot be determined due to subsequent repointing, a raked joint profile shall be used.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for each product indicated, including recommendations for its application and use. Include test reports and certifications substantiating that product complies with requirements.

B. Submit documentation showing Contractor's experience of 5 in masonry cleaning & restoration, plus a list of similar jobs to the one specified herein identifying when, where, and for whom the work was done. Provide required certification or qualifications for workers trained and experienced in proprietary cleaning materials and systems for masonry in historic structures, and furnish documentation of number of years of work of this type.

C. Cleaning Plan: Written description of cleaning process, including materials, methods, equipment and sequencing of the work. Product data and contractor's documentation shall be submitted before or with the Cleaning Plan. Cleaning plan shall include water pressure at working distance from the masonry, specifications on nozzles, proposed dwell time or soaking time, and such other specifics pertaining to the planned cleaning methods.

D. Brick samples: Provide two (4) samples of each type of new brick and one (1) sample of each existing type of brick being matched. Damaged existing brick is acceptable for the latter providing most of the exterior surface of the brick remains

E. Masonry mortar submittals:

1. Submit a minimum of two (2) original mortar samples for color and texture matching, one from a primary chimney and one from the brick base of the building. Samples must be of sound mortar taken from within bedding joint, or adhered to a removed brick and of sufficient size to judge the composition, color and texture of the mortar for the Architect's comparison to new mortar mix.

2. Submit data indicating proportion or property specifications and brand for each type of mortar ingredients including cement, lime, sand and coloring admixtures, if any.

3. Manufacturer's Certificate: Certify that products meet or exceed specified requirements, and ingredients meet applicable ASTM standards.

4. Submit samples of gradated aggregate/sand

5. Submit cured samples of color-matched mortar to Architect for initial review & selection for repointing test panel. A maximum of two (2) samples of the mortar will be selected for mock-up in the panel.

6. Mortar Mix Design, including listing of ingredients, pigments and proportions of mix

1.5 TESTING/MOCKUPS

A. Following review of the Cleaning Plan and before commencement of masonry cleaning, prepare test areas of cleaning methods on the building in locations approved by the Architect. Each test area shall be a minimum of 2 sf in area. Test gentlest cleaning methods first and adjust the cleaning process as required until an acceptable method(s) is obtained. All tested areas shall be allowed to dry before inspection by the Architect to make a determination on the effectiveness of a particular treatment.

1. Areas tested with cleaners containing chemicals should be exposed to weather conditions for a period of 2 weeks or more, consistent with the schedule of the work, prior to inspection.

B. Before commencement of any repointing, repairs or rebuilding, Contractor shall prepare a test area on one of the main brick chimneys, for approval of acceptable match to the historic mortar and joint treatment and standard of workmanship. Test panel shall be constructed with mortar samples previously selected by the Architect and shall be a minimum of ten (10) SF in area, half

the area showing completed joints, and half showing joints prepared for pointing. Testing will continue at the Contractor's expense until approval by the Architect. Approved test patch shall become the standard for masonry pointing and any unacceptable test area shall be removed. Keep approved test area available for comparison throughout the project.

C. If grinders are proposed to be used in the work, the test panel shall demonstrate that the masons are skilled in the use of the tool and that proper operational safeguards are employed by such that the brick will not be damaged by the use of grinders.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver new brick on pallets. Store off the ground to prevent contamination by mud, dust or other materials likely to cause staining or other defects.

B. Handle masonry by mechanical means, by hand or tongs. Dumping is not permitted.

C. Cover brick, when necessary, to protect from the elements. Any material that has deteriorated, frozen or been contaminated shall not be incorporated in the Work.

D. Deliver mortar materials in clearly labeled packaging. Store off the ground and in accordance with manufacturer's instructions to prevent contamination by foreign materials. Maintain packaged materials in a clean, dry state protected against weather, traffic and foreign materials.

E. Protect masonry accessories from the elements. Deliver to site in manufacturer's original, unopened containers and packaging, bearing labels as to type and names of products and manufacturers.

1.7 ENVIRONMENT AND PROTECTION

A. Clean masonry surfaces with methods that involve water only when air temperatures are 40 degrees F (4 degrees C) or above and will remain so until masonry has dried out. Do not carry out any cleaning method involving water when the temperature is expected to fall below 35°F within 5 days of washing, misting or rinsing the masonry.

B. Protect adjacent materials from damage during cleaning (including masking where required), protect people from spray and dust from cleaning operation (including blocking or screening work areas where required), and properly remove and dispose of cleaning agents, paint, rinsing & residues, and by-products of cleaning, for all cleaning procedures executed including water washing.

C. Protect the interior of buildings from the cleaning operations, including infiltration of water and dust through windows.

D. Inform workers, having access to an affected work area, of the contents of the applicable material safety data sheets, of potential health and safety hazard, and of protective controls associated with materials used for cleaning. An affected work area is one that may receive dust, mists, and odors from the preparation and cleaning operations. Workers involved in masonry cleaning shall be trained in the safe handling and application, and the exposure limit, of each material to be used in the project.

E. Masonry repair and repointing, Cold Weather Conditions:

1. At temperatures below 40 degrees Fahrenheit, heat mixing water to maintain mortar temperature between 40 degrees Fahrenheit and 120 degrees Fahrenheit. If necessary, store materials in a heated area to allow mortar temperatures to remain above 40 degrees F throughout the placement and finishing cycle.

2. At temperatures between 40 degrees Fahrenheit and 32 degrees Fahrenheit, protect masonry from rain and snow and maintain an ambient temperature of 40 degrees Fahrenheit for 72 hours after laying using auxiliary heat or insulating blankets.

3. At temperatures between 32 degrees Fahrenheit and 20 degrees Fahrenheit, provide wind breaks and cover the masonry to prevent wetting and freezing. Maintain an ambient temperature of 40 degrees Fahrenheit for 72 hours after laying using auxiliary heat or insulating blankets

4. At temperatures below 20 degrees Fahrenheit, provide heated enclosures for laying the masonry. At the end of the workday, maintain an ambient temperature of 40 degrees Fahrenheit for 72 hours after laying using auxiliary heat or insulating blankets

5. Do not lower freezing point of mortar by use of antifreeze, calcium chloride or other additives.

6. Do not use frozen materials or materials coated with ice or frost.

F. Do not erect or repoint masonry exposed to sun when material surface temperature is above 80 degrees Fahrenheit, unless shading of the work is provided and water-misted burlap covering is provided. Protection from excessive exposure to sun and moist curing procedures shall be maintained to keep mortar moist for 72 hours following final tooling.

1.8 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM C1713, 2017, Standard Specification for Mortar for the Repair of History Masonry

2. ASTM C144, Specification for Aggregate for Masonry Mortar

3. ASTM C207, Specification for Hydrated Lime for Masonry Purposes

4. ASTM C1148, Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar

1.9 WARRANTY

A. Cleaning procedures shall be warranted for a period of two years against harm to substrate or to adjacent materials including, but not limited to, discoloration of substrate from improper procedures or usage, chemical damage from inadequate rinse procedures, and abrasive damage from improper procedures.

B. Repair procedures, including repointing, shall be warranted for a period of two years against: discoloration or mismatch of new mortar to original historic mortar, discoloration or damage to masonry from improper mortar clean-up, loss of bond between masonry and mortar, fracturing of masonry edges from improper mortar joint preparation procedures or improper mortar formulation, and occurrence of efflorescence or failed adherence of properly applied paint.

PART 2 PRODUCTS

2.1 CLEANING PRODUCTS & SYSTEMS

A. Water for cleaning: neutral pH, low-iron potable water, with addition of a non-ionic detergent, if required

1. Non-ionic detergents: Igepal by GAF, Tergital by Union Carbide, Triton by Rohm & Haas, or approved equal

B. Water misting: system for continuously or intermittently misting the surface of the masonry with a fine (nebulized) spray of water designed to soak and soften moderate to heavy deposits, for removal with the application of minimal amounts of water on the masonry. Mist delivery shall be automated (for timed operation) and delivered through lengths of punctured hose, tubing or pipe with non-ferrous fittings, including plastic valves and nozzles for control of the amount of water and for even coverage of the area being cleaned. Mist delivery system shall be designed to be

movable and attach to a temporary frame or a scaffolding to enable misting of the same surface for up to several days. as required. Wrap the misting apparatus and immediate area of stone being cleaned with plastic sheeting to contain the mist and provide a water outflow to collect used water.

1. Water pressure: less than 100 psi

C. Water washing: low pressure cold or hot water washing or rinsing

1. Water pressure: up to 200psi at the pump and 2.5 to 3 gpm discharge.

2. Nozzles: fan-type plastic nozzles providing a 15-40 degree spray.

D. Low-pressure micro abrasive cleaning: wet/dry or dry system with controlled, compressed air delivery of micro-particles to targeted areas of the masonry; Rotec Vortex system by Quintek, Niagara, Ontario, Canada, TORC (formerly JOS) system, Stonehealth Ltd., Dursley, UK, or Sponge-Jet Inc., Portsmouth, NH. All operators of the system shall be certified by the system manufacturer.

1. Particles: less than 90 microns in size, particle material and hardness as recommended by the system manufacturer and approved in testing. Do not use sodium bicarbonate (baking soda).

2. Delivery pressure: less than 75 psi

E. Paint remover: environmentally safe commercial formulation for removal of paint, painted grafitti and stains, free of methylene chloride.

1. PeelAway 7 by Dumond Chemicals, or approved equal

F. Poultice: any pre-mixed gel or paste formulation of a proprietary cleaning product, or a site-prepared paste, intended to dwell on the surface of the masonry for an extended period of time, in a damp state, in order to draw out salts or stains that have penetrated the masonry. Product data submitted for approval of proprietary poultices shall list all ingredients. Site-prepared poultices shall contain only approved cleaning products specified in this section, mixed with any of the following absorbent materials: fuller's earth, kaolin (clay powder), shredded paper (cellulose) or cotton. Poultices may contain:

1. Chelating agent: EDDS or EDTA

2. Thickener: glycerin

3. Ammonium carbonate, maximum 10% solution

4. Paper or latex film backing material

G. **Do not use any acidic products or abrasives**, including specified products, for cleaning brick that have not been approved in writing.

H. Cleaning tools and equipment shall not cause staining, erosion, marring or other damage or changes of appearance in the surfaces being cleaned. Demonstrate cleaning equipment and techniques of operation in the preparation of test areas. Acceptable equipment settings and calibrations shall be maintained throughout the work.

1. Brushes and scrapers: non-ferrous natural or synthetic bristle brushes, wooden scrapers and application paddles with rounded edges. Metallic tools and wire brushes shall not be used.

2. Provide associated equipment for cleaning, such as timing equipment, valves, pressure gauges, hoses, other hardware and tools as required to ensure operation control and a continuous or timed intermittent supply of material where applicable.

2.2 BRICK

A. Replacement brick shall match the historic brick in size, color and texture for the area of masonry in which it is located.

1. Provide face brick with matching varigated coloration for repair/replacement areas around the base of the building, including brick coping on areaway walls.

2.3 MORTAR

A. Mortar Materials:

1. Water: potable quality, free from acids and alkalis.

2. Cement: White Portland Cement, to comply with ASTM C 150 Type I or II, having less than 60% alkali (sodium oxide) or less than 15% water soluble alkali by weight in the lime and cement combined. Low-alkali Cement may be substituted for White Portland, where available. Masonry cement is not permitted.

3. Lime: Hydrated Lime, complying with ASTM C207 Type S.

4. Aggregate: washed sand, complying with ASTM C144, and matching the texture and range of sizes found in the mortar to be matched. Color of aggregate shall also match existing, as available. Where color match cannot be obtained with available sand, a minimal amount of dry pigment may be added to the mortar mix to achieve color match.

5. Additives: do not use anti-freeze or air-entraining agents. Contractor shall receive prior approval of the Architect for the use of any additives.

6. Pigments: Super Concentrated Mortar Color by Euclid Chemical Co., or approved equal, dry, pure natural mineral pigments.

B. Mortar Mix, General:

1. Mix shall be proportioned by volumes of ingredients, using containers of known volume. No shovel measurement of mortar ingredients is allowed.

2. Completed mortar on the building is intended to match the existing mortar for the building, as determined by approved test panels, as to color, grain size and texture. If pigments are required to match existing mortar color they shall be incorporated into the mortar mixes used for the test patties and test panel(s). Dry pigments shall NOT EXCEED 5% of the total binder (lime & cement combined) in the mortar mix.

3. Mix mortar using clean non-alkaline water until homogeneous, stiff, and plastic. Mortar shall not set more than 2 hours before being used.

C. Mortar mix for brick restoration and repointing:

1. Type S, Cement-Lime:
2 parts white Portland cement ASTM C150 Type I
1 part hydrated lime ASTM 207 Type S
7-9 parts clean non-staining sand, with no admixtures

2.4 MASONRY TOOLS & EQUIPMENT

A. Tools for brick removals and repointing: Mason's hand tools or Barre Short Stroke Pneumatic Carving Tool, Type A or Type B and splitter or cape chisel as manufactured by Trow and Holden Co., Barre, VT (800-451-4349), or equal, are acceptable. Use of mechanical grinders is subject to approval based on the test panel.

B. Provide equipment for mixing, transporting, placing, and confining masonry and mortar placements capable of supporting work operations in an uninterrupted manner. Defects and deficiencies in operation or capacity shall be resolved prior to the work. Equipment used for mixing, conveying, and placing of materials shall be clean, free of old materials and contaminants, and shall conform to the material manufacturer's recommendations. Provide associated equipment, such as mixer timing equipment, valves, pressure gauges, pressure hoses, other hardware, and tools, as required to ensure a continuous supply of material and operation control.

PART 3 EXECUTION

3.1 SEQUENCE OF WORK

A. Masonry work on the building shall be executed in the following sequence, unless otherwise approved by the Architect upon submission of an alternate sequence of work plan by the contractor:

1. Cleaning of masonry
2. Masonry repairs and rebuilding
3. Repointing

3.2 CLEANING PREPARATION

A. Prior to cleaning with methods that involve water (including rinsing), temporarily plug large cracks, open masonry joints, and areas where bricks are missing with clay or diatomaceous earth to mitigate penetration of water into the interior of the masonry walls during cleaning.

B. Remove insect nests, bird droppings and other loose materials with wooden scrapers or bristle brushes.

3.3 MASONRY CLEANING

A. Extent of the work:

1. Removal of all paint and coatings from all exposed surfaces of the (five) chimneys, except where such coating is so well adhered that complete removal would damage sound original bricks. Acceptable standard for paint/coating removal will be established by testing.
2. Cleaning of brick masonry around the base of the building only to remove any heavy general soiling and/or foreign materials, employing basic hand and water cleaning method
3. Removal of paint that is not soundly adhered to the CMU masonry

B. Historic materials shall not be damaged or marred in the process of cleaning. Surfaces shall be evenly cleaned to the standard established in test panel(s). The cleaning process shall not affect the density, porosity, or natural color of the masonry. Cleaned masonry shall have a neutral pH. Cleaning shall proceed in an orderly manner that results in uniform coverage of all surfaces indicated for cleaning. Following completion of the cleaning each area of masonry shall be dried prior to the start of any repair work.

C. Use the gentlest cleaning methods, which will achieve removal of visible dirt and deposits without pitting the surface of the brick, in accordance with the standard established by the test cleaning. Clean initially with stiff non-ferrous brushes and water misting and/or low-pressure water washing. Non-ionic detergent (surfactant) may be used with water misting/washing and brushing to assist in removing soil as needed. Chemical or micro abrasive cleaning techniques should be used only for soiling that resists removal with water cleaning methods, and following acceptance of test cleaning with such techniques.

1. Duration of water misting, and dwell time of poultices and other cleaning agents shall be determined by testing

D. Do not allow cleaning solutions containing chemicals to dry on the masonry. In general, execute wet cleaning processes working upwards from bottom to top of each section of wall, keeping lower areas of the wall wet during the cleaning to prevent streaking.

E. Rinsing: cleaned surfaces shall be rinsed clean of all contaminants and cleaning solutions with clean water spray at a pressure less than 200 psi, working upwards from bottom to top of each treated area.

F. Collect water from all wet cleaning operations. Water that does not contain regulated cleaning chemicals shall be conveyed to a local sanitary drain as directed by the Owner. Water containing chemicals shall be handled and disposed of in accordance with regulatory requirements for the particular chemicals.

G. Water Cleaning:

1. Water washing: Spray apply water to masonry surfaces to comply with requirements indicated by test patches for location, purpose, water temperature, pressure, volume, and equipment. Spray nozzles shall not be held closer than 12 inches from surface of masonry. Water shall be applied side to side in overlapping bands to produce uniform coverage.

2. Water Misting: continuously or intermittently mist the surface of the masonry with a fine spray of water designed to soak and soften deposits for removal with the application of minimal amounts of water on the masonry. Mist shall be delivered through lengths of punctured hose or pipe with non-ferrous fittings and mounted on a temporary frame or moveable scaffolding designed for even coverage of the areas being cleaned.

3. Supplement water cleaning with addition of non-ionic detergent and hand scrubbing with hard bristle (non-metallic) brushes as required to achieve test panel results. Remove any residue and cleaning agents with final wash.

4. Scrubbed surfaces shall be rinsed clean of all contaminants and cleaning solutions with clean water at pressure less than 200 psi. Work upwards from bottom to top of each treated area. The rinsing cycle shall remove all traces of contaminants and cleaning solutions.

H. Cleaning by Poultice: Poultices shall be used for initial removal of salts and/or stubborn staining and supplementary removal of salts or stains that remain following the general cleaning. The formulation of a poultice as to inert base material and active cleaning ingredients will be customized to the characteristics of the masonry and type and resistance of targeted soiling. Regardless of formulation, use driest and thinnest poultice that is effective. After application to the masonry surface, cover poultice with plastic or aluminum sheet to avoid immediate evaporation and leave covered for the time period determined in testing. Remove covering and leave poultice to dry in place, typically 48 hours or longer. Remove dry material by hand with brushes and rinse with low-pressure water to remove any residual materials or chemicals. Repeat poultice application as required to achieve approved standard of cleaning.

1. Removal of salts: poultice shall contain at maximum 5% concentration of efflorescence neutralizer. Standard of removal, at acceptance of the work, is a minimum of 75% of visible efflorescence for cleaning executed in the spring, or 95% of visible efflorescence for summer or fall cleaning. Repeated application may be required.

I. Chemical Cleaning:

1. Chemical cleaning shall be the use of any chemically active product in addition to water, including detergents, ammonia, and bleach. Strictly follow the manufacturer's instructions for handling, application, environmental conditions, removal and clean up of chemical cleaning products. Follow approved dwell time and/or number of applications established by the cleaning test areas. Chemical cleaners shall not be applied to the same surfaces more than twice.

2. Surface prewetting: Masonry surfaces to be cleaned with chemical cleaners shall be wetted with low pressure water spray before application of the cleaner.

3. Alkaline Chemical Cleaning: Apply alkaline chemical cleaners according to manufacturer's instructions, by low pressure spray 50 psi max., roller, or brush. Cleaner shall remain on masonry surface for the time period recommended by the manufacturer. Manual scrubbing by brushes shall be employed as indicated by test patches for the specific location. Cleaned surfaces shall be rinsed with a low-to-moderate pressure spray of water. Immediately after rinsing of alkaline cleaned surfaces, apply a neutralizing afterwash to the cleaned masonry areas, by low pressure spray 50 psi max., roller, or brush. Afterwash shall remain on masonry surface for the time period recommended by manufacturer. Cleaned surfaces shall be rinsed with a low-pressure spray of water to remove all traces of chemical cleaners.

4. Paint/Graffiti Removal: where areas of paint, coatings or graffiti on the masonry are not removed by the overall cleaning procedure, spot remove with specified paint stripper product in strict accordance with the manufacturer's instructions for use.

5. Masonry surfaces which have been chemically cleaned shall be pH tested using pH monitoring pencils or papers. Chemically cleaned masonry shall be rinsed of all chemical residues until a neutral pH (7) reading is obtained from the masonry surface.

J. Micro-Abrasive Cleaning

1. Micro abrasive cleaning shall be executed only by workmen experienced in this cleaning technique and certified by the manufacturer in the use of the selected system. Contractor shall designate a single workman responsible for daily supervision and quality control of the execution of the cleaning.

2. Maintain the limits of pressure, amount of water flow, and distance of nozzle from the masonry surface established on the test panel at all times during the cleaning process.

3. Micro abrasive cleaning may be used to remove graffiti, paint and other organic stains only if solvents have not been previously used to attempt to remove these contaminants.

K. Clean Up: Remove any residue and cleaning agents on the masonry with a final water rinsing as required.

3.4 BRICK MASONRY REPAIR/RESTORATION

A. Extent of repair/restoration work: remove broken, damaged or previous replacement brick units in the brick masonry throughout the building exterior, including all chimneys and all brick base around the building and used as coping for areaways. Bricks to be replacement with new units include, but are not necessarily limited to, the following:

1. Brick cracked or broken through the unit

2. Brick spalled or chipped over more than 20% of its exposed surface area

3. Brick with one or more corners or edges broken off

B. Protection throughout the execution of masonry work:

1. Protect adjacent non-masonry materials against staining; mask as necessary.

2. Protect sills, ledges, offsets, and similar items from mortar drippings and other damage

3. Remove misplaced mortar immediately.

4. Protect newly laid masonry from exposure to precipitation, excessive drying, freezing, soiling, and other harmful elements.

5. Cover top of uncompleted walls with non-staining waterproof covering when Work is not in progress. Place with minimum 2 foot overhang of protective covering on each side of wall and securely anchor.

C. Carefully cut out and remove brick units to be replaced. Pre-wet brick surfaces in which new brick will be laid. Clean loose and foreign materials off supporting surfaces just prior to laying brick.

1. Reset any loose or displaced existing bricks that do meet the criteria for replacement

3.5 MORTAR MIXING

A. Pre-mix sand and lime thoroughly for each batch of mortar. Mix pigments, if used, into dry mix.

B. Mix mortar using clean non-alkaline water until homogeneous, stiff, and plastic. Mortar shall be used within 2 hours of mixing. Do not retemper mortars that have begun to set.

C. Mix mortar using clean non-alkaline water until homogeneous, stiff, and plastic. Mortar shall be used within 2 hours of mixing.

D. Cement and water must be added immediately before use of the mortar. Mortar should be mixed a minimum of 10 minutes before using. Mortar is to be just wet enough to hang on a trowel. Do not add excessive water.

E. All measuring to be done with containers of known volumes. Shovel measurement of materials

3.6 REPOINTING

A. Extent of work: repoint 100% of brick masonry joints. Repoint areas in which repairs and/or reinstallation are executed at the same time as the remainder of the existing wall.

1. Fully remove previous repointing mortars, as well as any broken or disaggregated original mortar beneath

B. Joint Preparation: Exercise caution during joint preparation to avoid damage to the brick being retained.

1. Cut out mortar joints to a minimum depth of 1" for repointing. Remove any loose, powdery, or crumbling mortar beyond the depth of the cut, and remove loose particles in the joint with an air jet. Remove mortar cleanly from the joint leaving square corners at the back of the joint.

2. Cut out and clean out mortar full depth of the joint to create weep vents and new expansion joints.

3. If mechanical cutters (grinders) have been approved for use in the test panel, cut the center of the mortar joint with the cutter and remove remaining mortar on the brick surface with hand or specified pneumatic tools. If grinding tools are not approved, remove mortar with hand held pneumatic tool. Width of the cutting edge and any portion of the chisel shaft which enters the mortar joint shall not exceed 3/4 the width of the joint. Compressor shall have a

variable pressure control and be regulated to deliver only the minimum pressure effective for cutting of the mortar joint.

C. Surfaces to receive flashing shall be dry cleaned. Remove any projections that may puncture flashing. Install flashings and masonry accessories as detailed on the drawings prior to final pointing layer. Caulk with approved sealant around any penetrations in flashing.

D. Wet mortar joints and surrounding brick before pointing or resetting brick. Allow water to soak into brick so there is no freestanding water before pointing or laying brick.

E. Pointing: Apply mortar in 1/4” or thinner layers, allowing each layer to dry to thumb print hardness before proceeding. When final layer is thumbprint hard, strike and tool joint.

1. Joint depth and profile shall match existing brick masonry. Jointing tool used shall make complete contact along the edges of the unit. Tooling shall compress the mortar and seal the surface of the joint.

2. Remove excess mortar from edges of joint and adjacent surfaces with a (non-ferrous) brush, no less often than at the end of each day’s work.

3. Curing: cure mortar by maintaining in a damp condition for not less than 72 hrs.

3.7 CMU MASONRY REPAIR

A. Remove any deteriorated mortar from CMU masonry and spot repoint as specified in 3.6. Fill any holes in CMU units with mortar. Clean masonry and paint per Section 09 90 00.

3.8 CLEAN UP AND PROTECTIONS

A. Dry brush brickwork after mortar has set, at end of each day's Work.

B. After laying or repointing masonry, work shall be cleaned using bristle brushes and low-pressure water cleaning to remove dirt, excess mortar, and stains.

1. Clean masonry surfaces only when air temperatures are 40 degrees F (4 degrees C) and above and will remain so until masonry has dried out. Temperatures must remain above 40 degrees F (4 degrees C) for not less than 5 days after completion of cleaning.

2. Water washing: low pressure cold or hot water washing or rinsing, up to 200psi at the pump and 2.5 to 3 gpm discharge.

3. If staining or soiling persists, reclean with water, non-ionic detergent and brushing and/or spot clean with previously tested and approved chemical cleaning method

C. Contractor shall remove all masonry and mortar debris from the site

D. After installation and until completion of construction, the Contractor shall protect masonry work from damage and staining until completion of the construction work.

3.9 FINAL INSPECTION

A. Following completion of the masonry work, inspect the structure for damage, staining, and other distresses. Repair surfaces and areas of the work exhibiting defects as directed.

END OF SECTION

SECTION 06 10 00

ROUGH AND FINISH CARPENTRY

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 rough and finish carpentry as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

1. Framing with dimensional lumber, including replacement in kind of deteriorated framing members in the areas of the work.

2. Wood grounds, nailers, furring, blocking, and spacers.

3. Wood and plywood roof deck.

4. Limited interior trim for wood windows.

5. Modification of and new interior window stools where indicated on the drawings.

6. Repairs to wood finials on dormers.

7. Wood door frames.

8. Porch posts.

9. Ceiling on East Porch.

1.3 RELATED SECTIONS

A. Asphalt Shingle Roofing – Section 07 31 13.

B. Wood Siding and Trim – Section 07 46 00.

C. Sheet Metal Flashing and Roofing – Section 07 61 00.

D. Joint Sealers – Section 07 90 00.

E. Wood Doors and Finish Hardware – Section 08 14 00.

F. Wood Windows and Glazed Doors – Section 08 52 00.

G. Painting and Finishing – Section 09 90 00.

1.4 QUALITY ASSURANCE

A. Rough carpentry standards: Comply with the following unless otherwise specified or indi-cated on the Drawings:

1. Lumber: American Softwood Lumber Standard PS 20 by the U.S. Department of Com-merce. Comply with applicable provisions for each indicated use.

2. Grading Rules:

   a. Douglas Fir, Hem-Fir, Idaho White Pine, and other Western Woods: Western Wood Products Association (WWPA) or West Coast Lumber Inspection Bureau (WCLIB).

   b. Southern Pine: Southern Pine Inspection Bureau (SPIB).

   c. Spruce-Pine-Fir: National Lumber Grades Authority (NLGA, Canada), or Northeast Lumber Manufacturers Association (NELMA).

3. Preservative Treatment: American Wood Preservers' Association (AWPA) and Ameri-can Wood Preservers Bureau (AWPB) Standards, quality control methods, and inspec-tion requirements.

B. Finish carpentry standards: Comply with the following unless otherwise specified or indi-cated on the Drawings:

1. Comply with the applicable provisions of the "Architectural Woodwork Standards" (First Edition-2009) (AWS) except as otherwise specified herein. References to "Premium", "Custom" and "Economy" Grades herein, shall be as defined in that Standard.

2. Lumber Standard: AWS Section 3, Custom Grade

3. Employ tradesmen experienced in fabrication and installation of finish carpentry.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Keep carpentry materials dry during delivery, storage and handling. Store lumber in stacks with provisions for air circulation within the stacks. Protect bottom of stacks against contact with damp surfaces. Protect exposed materials against weather.

B. Store materials for finish carpentry only in areas where the where specified moisture con-tent in the wood can be maintained with a tolerance of plus or minus 5%.

C. Keep all materials clearly identified with grade marks legible.

1.6 JOB CONDITIONS

A. Field verify all existing dimensions and conditions to which new carpentry will be fitted. No allowance will be made for materials that do not fit accurately or dimensions of members that do not match existing where matching is indicated or required for proper fit of the work. Spacers, shims or added trim are not permitted in carpentry exposed to view.

B. Correlate location of furring, nailers, blocking and grounds and similar supports so that attached work will comply with design standards.

PART 2 PRODUCTS

2.1 GENERAL

A. Lumber moisture content:

1. General: Kiln-dried to 15% maximum moisture content for concealed lumber not specified to receive wood preservative treatment.

2. Interior: Kiln-dried to 12% average moisture content for interior finish carpentry

B. Sizes and profiles:

1. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are dressed sizes for dry lumber.

2. Where “to match existing” is required actual dimensions and profile of existing boards and trim members are to be provided. Nominal sizes and thicknesses are not permitted.

2.2 FRAMING AND MISCELLANEOUS LUMBER

A. Framing lumber: Douglas Fir or Hem-Fir, Southern Pine or Spruce-Pine-Fir

1. Light framing, 2" through 4" thick, less than 6" wide, provide Standard and Better grade, except Stud grade for stud framing

2. Structural framing, 2" through 4" thick, 6" and wider, provide No. 2 grade

B. Miscellaneous lumber for blocking, nailers and furring:

1. Standard grade, No. 3 grade, or better grade of the following species unless otherwise indicated: Douglas Fir, Hem-Fir, Idaho White Pine, Southern Pine, or Spruce-Pine-Fir.

2. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.3 BOARDS

A. Board lumber for exposed exterior boards and fabrications from solid lumber:

1. Moisture Content: 15% maximum

2. Do not use finger-jointed material.

3. Species: For 3” thickness or less, including trim boards, sills, brackets, railings, and other solid wood fabrications, provide one of the following:

a. WWPA Grade A Western Red Cedar

b. Northern White Cedar or Atlantic White Cedar, Grade A

c. Eastern White Pine (Pinus Strobus), D Select & better grade

B. Concealed boards: dressed lumber S4S, boards width and thickness to match existing boards being replaced or as indicated on the Drawings.

1. Species and grade: Southern Pine, No. 3, or SPF No.1/No.2, or Eastern White Pine, Premium & Better

2. Moisture content: maximum 19 percent.

2.4 PLYWOOD

A. Concealed plywood:

1. Exterior: CDX exterior grade with an Identification Index of not less than 48/24, in thickness indicated.

2.5 INTERIOR TRIM

A. Interior woodwork for painted finish: AWS Custom grade, plain sawn solid wood.

1. Clear Pine for windows and doors scheduled for paint (P) finish.

2. Mahogany unfinished for windows and doors scheduled for stain (S) finish.

3. Providing interior finish coats or stain is not included in this contract.

2.6 WOOD DOOR FRAMES

A. Wood Species: Douglas Fir, Western Hemlock, Mahogany.

B. Sizes and profiles as indicated on the Drawings.

2.7 PRESERVATIVE TREATMENT

A. Treat lumber and plywood where indicated and as specified. Comply with applicable AWPA U1 Standards and quality control and inspection requirements.

1. Fasteners and anchoring devices to be used with wood treated with waterbourne preservatives shall be hot-dipped galvanized or stainless steel if the wood will be exposed to moisture.

B. Complete fabrication of items to be treated to the greatest extent possible prior to treatment. Where items must be cut after treatment, coat cut surfaces with heavy brush coat of the same chemical used for treatment or other solution recommended by AWPA Standards for the treatment.

C. Inspect wood after treating and drying. Discard warped or twisted items.

D. Wood Treatment: Compatible with galvanized metal connector plates, unless other compatible protective finish for connector plates is approved by the Director for use with approved treatment.

1. Preservative Treatment: Category UC3A for Exterior Construction above Ground; coated and exposed to rapid water runoff.

2. Preservative Treatment: Category UC3B for Exterior Construction above Ground; uncoated and exposed to poor water runoff.

3. Nailers, blocking, cants, shim stock, and similar members used in conjunction with roofing (including related flashings, trim and vapor barrier), coping, and waterproofing.

4. Nailers, blocking, furring, stripping, and similar concealed members in contact with exterior masonry and concrete (including interior wythe of exterior walls), and all sills for framing.

5. Wood items indicated or scheduled on the Drawings to be preservative treated.

2.8 FASTENERS

A. select and furnish items of type, size, style, grade, and class as required for the installation of the Work as specified, or if not specified in accordance with the specified standards that govern the work. Items shall be stainless steel for exterior locations. Unless otherwise shown or specified, comply with:

1. Nails and Staples: FS FF-N-105.

2. Wood Screws: FS FF-S-111.

PART 3 EXECUTION

3.1 REMOVALS & PREPARATION

A. Execute demolition and removals carefully to minimize damage to existing historic building fabric. Provide all temporary shoring and protection required to prevent damage to existing construction that is to remain. The Contractor will be held responsible for the restoration, to the Architect's satisfaction and at no additional cost to the Owner, of any existing building fabric that is removed or damaged unnecessarily.

1. Limit removals and cutting to the smallest amount necessary for proper installation of the Work, unless otherwise indicated on the drawings.

2. Existing structural members, unless specifically indicated, shall not be cut without prior approval of the Architect. Provide temporary shoring of existing structure during replacement or partial replacement of structural framing

3. Patching to match existing, or patching to existing material, shall mean provide new material that matches the existing in dimensions, profile, finish appearance & species or composition where applicable. Patching shall be level with adjacent existing surface and fit snugly without trim or filler.

B. Verification of Conditions: Field verify all dimensions and existing conditions for proper fit of replacement wood and carpentry work to existing conditions.

1. If unforeseen obstructions or conditions are encountered communicate with the Architect before proceeding with the Work.

C. Examine substrate conditions and surfaces upon which work is to be installed. Do not proceed with finish work until all surfaces are dry, free of debris and protruding nails and other unsatisfactory substrate conditions are corrected.

3.2 INSTALLATION, GENERAL

A. Wood members and fabrications specified “to match existing” shall exactly match existing dimensions, profiles and surfacing of members being replaced. Approximate sizes and profiles are not acceptable.

1. For replacement of decayed or damaged wood, replace the complete member.

B. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Discard units of material that are unsound, warped, bowed, twisted, improperly treated, or not adequately seasoned.

C. Cut wood items to fit unless specified to be shop-fabricated, or shop-cut to exact size. Scribe and cut for accurate fit where work abuts other finish Work. Fit joints neatly and accurately with adjoining surfaces in same plane where applicable.

D. Set carpentry work to required or existing levels and lines, with members plumb, true to line, cut, and fitted. Securely attach carpentry work to substrates by anchoring and fastening as shown and as required by recognized standards. Provide and locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction and as required to support facing materials, and trim.

1. Where existing framing members are not entirely plumb or level, install new or replacement members to fit existing conditions

E. Wood Framing: Install in accordance with applicable provisions of the AFPA “Manual for Wood Frame Construction”, unless otherwise indicated.

1. Do not splice structural members between supports.

F. Fastening:

1. Drill holes for fasteners to be installed within two inches of end joints of board lumber to prevent splitting.

2. Use blind nailing or countersink nail/screw heads in all work exposed to view. Fill nail/screw holes with wood putty and sand.

G. Wall framing:

1. Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs

2. Construct corners and intersections with three or more studs.

3. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.

H. Wood grounds, nailers, furring and blocking: Provide wherever shown and where required for screeding or attachment of other work.

3.3 INSTALLATION, TRIM & FINISH CARPENTRY

A. Condition the new interior wood to average prevailing humidity conditions in installation areas prior to fitting and installing.

B. Provide new interior trim as shown on the Drawings.

3.4 REPAIR TO HISTORIC DECORATIVE WOOD COMPONENTS

A. Carefully remove wood components using hand tools only for shop repair.

1. Document and label wood indicating location and indicating front and back if necessary for reinstallation.

B. Strip all paint and clean wood, removing any foreign debris.

C. Only perform repairs once wood is fully dry and free of dust.

D. Replace broken components with new material to match existing in size, profile, and species.

E. Fill any voids greater than 1/8” with wood putty.

F. Shop prime and paint.

G. Reinstall wood components in original locations.

3.5 FINISHING

A. Repair damaged and defective finish carpentry wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace woodwork.

B. Clean woodwork and fill nail holes in preparation for specified painting.

C. Repair any damage to existing wood window stools from window and/or trim work. Fill any gouges or dents with wood putty, sand and prime, ready for finish painting per Painting, Section 09000.

END OF SECTION

SECTION 07 10 00

ENVELOPE MOCKUPS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Administrative and procedural requirements for comprehensive mockups of the following types:

1. Exterior envelope mockups including masonry cleaning, masonry repointing and repairs, asphalt shingle and flat seam metal roofing, wood siding, and wood windows.

B. Related Requirements: Refer to applicable sections of the Specifications for materials, products and components to be included in mockups.

1. Masonry Cleaning and Restoration – Section 04 01 20

2. Asphalt Shingle Roofing – Section 07 31 13

3. Wood Siding and Trim – Section 07 46 00

4. Sheet Metal Flashing and Roofing – Section 07 61 00

5. Wood Windows and Glazed Doors – Section 08 52 00

1.2 DEFINITIONS

A. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Mockup of masonry cleaning products, methods, and standards.

2. Mockup of chimney mortar type, color, treatment, standards, and demonstration of safeguards to existing brick masonry.

3. Mockup of asphalt shingle roofing products, methods, fabrications, and standards. Mockup is to be a complete system incorporating elements specified. Mockup must incorporate “Yankee” gutter and drainage pan at side wall mockups.

4. Mockup of “Yankee” Gutter materials, fabrications, methods, and standards.

5. Mockup of drainage pan and sidewall flashing materials, fabrications, methods, and standards.

6. Mockup of flat seam roofing products, methods, fabrications, and standards.

7. Mockup of wood siding and trim products showing profiles, methods, and standards. Mockup to be incorporated with wood window mockup.

8. Mockup of wood window products, installation, and standards. Mockup is to be complete with interior and exterior trim and incorporated with wood siding and trim mockup.

1.3 QUALITY ASSURANCE

A. Mockups, General: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in locations accessible to the Architect and of size indicated or, if not indicated, as directed by Architect.

2. Notify Architect 7 days minimum in advance of dates and times when mockups will be constructed.

3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction.

4. Demonstrate the proposed range of aesthetic effects and workmanship.

5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.

6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

7. Demolish and remove mockups when directed unless otherwise indicated.

B. Preinstallation Conference: Conduct conference at Project site.

1. Review requirements for construction of mockup, and for protecting and maintaining mockup.

2. Review for procedures for reviewing, changing and approval of mockup.

PART 2 - PRODUCTS

2.1 MATERIALS AND COMPONENTS

A. Refer to individual Sections of the Specifications in Divisions 03 through 32 for requirements for materials, environment, protection, systems, products, components and assemblies to be used in the mockups, including mockup testing procedures if applicable.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 07 13 26

SHEET MEMBRANE WATERPROOFING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the sheet membrane waterproofing as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

1. Sheet membrane waterproofing for foundation wall surfaces.

1.3 RELATED SECTIONS

A. 072100 Building Insulation

1.4 SUBMITTALS

A. Shop Drawings: Typical installation details, showing details at flashings, at terminations, at joints, at intersection of horizontal and vertical surfaces, and at penetrations in membrane system.

B. Samples - Submit

1. Membrane, 6" x 6" samples of each membrane.

2. 6" x 6" sample of flashing.

3. 6" x 6" sample of drainage board.

C. Manufacturer's Literature: Submit manufacturer's technical, safety data sheets, and installation literature for all materials of this Section. Submit Independent Test data indicating that membrane meets properties specified herein.

D. General Contractor's Certification: Submit per Article 1.7.

1.5 STORAGE OF MATERIALS

A. All materials shall be stored in their original tightly sealed containers or unopened packages; shall be clearly labeled with the manufacturer's name, brand name and number, and batch number of the material with expiration date where appropriate.

B. Materials shall be stored in a neat and safe manner so as not to exceed the allowable live load of the storage area.

C. Material shall be stored out of the weather in a clean, dry area.

D. Liquid materials, such as adhesives, thinners and primers, shall be stored in areas away from sparks, open flames and excessive heat.

1.6 JOB CONDITIONS

A. No application of waterproofing shall commence or proceed during inclement weather, or the threat of imminent precipitation.

B. All surfaces to receive the system shall be thoroughly dry and free of dew or frost.

C. Materials shall be stored until time of mixing at temperatures above 60 deg. F. to maintain a consistency suitable for mixing. Do no work below 40 deg. F.

D. Prior to and during application, all dirt and dust shall be removed from surfaces either by vacuuming, sweeping, blowing with compressed air, or similar methods.

E. Surfaces not designated to receive the system shall be properly masked or otherwise protected against accidental spillage or application of the material to those areas.

1.7 WARRANTY

A. The manufacturer of the waterproofing system executed under this Section warrants the waterproofing system to be watertight and free from defects in materials and workmanship for a period of ten (10) years from date of acceptance of this Contract, and that he, at his own expense, repair and/or replace all other work which may be damaged as a result of such defective work, and which becomes defective during the warranty period.

B. Contractor's Two Year Workmanship Warranty: Provide a written guarantee for all work of this Section, stating that if, within two years after the Date of Substantial Completion of the Work, any of the work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so. The guarantee shall state that the Contractor shall bear all costs incurred by the Owner, including reasonable attorney's fees, to enforce compliance with the obligations of this Guarantee, and will replace any material or system that requires repeated maintenance or repair to function effectively. The obligation of this Guarantee shall run directly to the Owner, and may be enforced by the Owner against the Contractor, shall survive the termination of the Contract and shall not be limited by Conditions other than this Contract.

1.8 QUALITY ASSURANCE

A. Preinstallation Conference: Approximately 2 weeks prior to scheduled commencement of waterproofing installation, meet at Project site with Waterproofing Installer; preparer of substrate to receive waterproofing; and Consultant to review materials, procedures, schedules, and other requirements and conditions related to installing waterproofing.

B. Qualifications of Subcontractors

1. Subcontractors: All work of this Section shall be performed by a subcontractor who is approved by the manufacturer of the waterproofing material.

2. Qualifications of Subcontractors: Subcontractors shall submit evidence of being bona fide waterproofing subcontractors, for a period of not less than five (5) years, and that they are approved by the manufacturer of the waterproofing material for the installation of the manufacturer's material in accordance with the requirements of this Section.

a. Subcontractor shall submit a letter from manufacturer of waterproofing material stating that subcontractor is approved by the manufacturer for the application of the waterproofing systems specified and accepted for use on the Project.
b. Letter shall certify that the subcontractor has previously and satisfactorily applied the waterproofing systems specified herein on jobs of similar size and scope, under manufacturer's supervision.
c. Letter shall be on manufacturer's letterhead and shall be signed by an officer of the company, not by a local sales representative.

C. Manufacturer's Representative/Contractor's Certification

1. Representative of the waterproofing material manufacturer shall be required to provide field instructions and supervision for the installation of the waterproofing systems at the start of the work of this Section.

2. The manufacturer's representative shall be required to make sure that the workmen for waterproofing systems on the site of the Project are fully instructed and trained in the handling and application of all the materials, and shall see that all the materials are correctly installed.

3. Upon completion of the Installation, submit to the Architect written certification that the representative of the manufacturer of the waterproofing material has supervised the work of this Section and that all materials were correctly installed.

1.9 PROTECTION

A. Against Loads: Protect work of this Section against concentrated loads and any other loads or equipment that would damage the materials or work.

B. Against Traffic: Do not permit traffic on horizontally installed work of this Section, except for workmen doing the work, during the installation, and after the installation until membrane systems are covered with protective boards or with the specified finishing materials.

C. Against Damage: Protect vertically installed work of this section from damage by reinforcing and placement.

1. Take and maintain necessary preventive measures to protect work of this Section from damage until Project is accepted.

2. Rejection of Damaged Work

a. Damaged materials or work will be rejected.
b. Rejected materials or work must be immediately removed and replaced with new materials.

1.10 FIELD QUALITY CONTROL

A. Inform Architect in writing on a daily basis of any of the following events. State specific location of each occurrence.

1. Buckling to the Waterproofing and other deformations as a result of ground water events.

2. Leakage through the finished waterproofing installation.

3. Damage by other trades.

B. Provide Manufacturer's Representative's report (prior to backfill) stating that the waterproofing has been inspected and is acceptable and eligible for manufacturer's warranty.

PART 2 PRODUCTS

2.1 WATERPROOFING MEMBRANE

A. Trade names used herein for membrane waterproofing are those of W.R. Grace. Other acceptable manufacturers include GCP, and Henry Co. provided manufacturers noted substitute their equivalent products.

B. For accessible foundation wall waterproofing, provide "Bituthene 4000" sheet waterproofing membrane, 60 mils thick, and "Bituthene Liquid Membrane," 60 mils thick, for flashing, as manufactured by W. R. Grace or approved equal noted above.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where membrane waterproofing is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work. Starting of work implies acceptance of substrate.

3.2 PREPARATION OF SURFACES TO RECEIVE WATERPROOFING

A. Conform to the requirements of Bituthene Techletter No. BTL 82-02, published by W. R. Grace if using W.R. Grace products.

3.3 INSTALLATION

A. General: Conform to recommendations and published specifications of the manufacturer' including environmental requirements and preparation requirements to receive waterproofing.

B. Foundation Walls (Accessible Walls)

1. General: The membrane, when in place must withstand a minimum static ground water pressure of 150 feet.

2. Priming: Application of primer shall be limited to what can be covered with Bituthene Waterproofing Membrane in a given work day. Primed areas not covered by membrane during the work day will be reprimed. Apply primer by spray, roller or brush at a rate of 250 - 350 sq. ft. per gallon. Roller shall be natural material such as lamb's wool, having a nap of approximately one inch. Primer shall be applied to a clean, dry, frost-free and dust-free surface. Sufficient primer must be used on the day surface to condition it to a dust-free state suitable for the application of Bituthene Waterproofing Membranes.

   a. Bituthene 4000 Surface Conditioner should not be applied below 40 deg. F. on vertical surfaces. Allow primer to dry 30 minutes. Conditioner is considered dry when the substrate returns to its original color.
   b. Re-prime areas that become dusty or dirty prior to membrane installation.

3. Membrane Installation: Apply Bituthene Waterproofing Membrane vertically in sections of 8' in length or less. On higher walls apply two or more sections with the upper overlapping the

lower by a least 2-1/2". Press all membrane in place with heavy hand pressure or rollers during application.

4. Sealing Edges: Bituthene Waterproofing Membrane shall be applied over the edge of the slab or over the top of the foundation or parapet wall. If the membranes are terminated on the vertical surface, a reglet or counter flashing may be used or the membrane may be terminated directly on the vertical surface by pressing very firmly to the wall. Press edges with a metal or hardwood tool such as a hammer or knife handle. Apply a troweled bead of Bituthene Mastic to all vertical and horizontal terminations. Bituthene Liquid Membrane can be used as an alternative method at the General Contractor's option.

5. Sealing Seams: All edges and end seams must be overlapped at least 2-1/2". Apply succeeding sheets with a minimum 2-1/2" overlap and stagger end laps. Roll or press the entire membrane firmly and completely as soon as possible. Patch misaligned or inadequately lapped seams with Bituthene Membrane. Slit any fish mouths, overlap the flaps, and repair with a patch of Bituthene and press or roll in place. The edges of the patch shall be sealed with a troweling of mastic. Laps within 12" of all corners shall be sealed with a troweling of mastic.

6. Corner Forming: Outside corners must be free of sharp edges. Inside corners shall receive a fillet formed with Liquid Membrane, latex modified cement mortar equal to Daraweld C made by Grace mixed with cement mortar or epoxy mortar. Do not use fiber or wood cants. One of two methods may be used for treating corners at the General Contractor's option:

    a. Install an 11" minimum strip of Bituthene Membrane centered on the corner. Install Bituthene Membrane over the treated inside and outside corners.

7. Over waterproofing, apply drainage composite board by adhering board to cured membrane using tape or adhesive per manufacturer’s recommendations; lap all edges 4” and conform to the following:

    a. Install drainage layer directly over the membrane. Start at the low points on the wall and shingle all laps to the flow of water.
    b. Splice drainage panels together by butting longitudinal edges of adjacent sheets and peeling back fabric to expose the cores of the panels. Install precut “lock strips” consisting of 4 dimple x 5 dimple sections of the drainage panel centered on the joint between the panels and spaced every 10 dimples along the length of the joint. Snap dimples of “lock strip” to dimples of each panel and reattach fabric over the panel joint.
    c. Cut the core of the drainage panels around penetrations, and cut an “X” in the filter fabric and tape the fabric to the sides of the penetration.
    d. Cover all terminal edges of the drainage composite with an integral fabric flap by tucking the fabric around the edge of the core and adhering the fabric to the bottom of the core.

3.4 CLEAN-UP

A. Upon completion of the waterproofing system, the General Contractor shall remove all equipment, material and debris from the work and storage area, and leave those areas in an undamaged and acceptable condition.

END OF SECTION

SECTION 07 21 00

BUILDING INSULATION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 DESCRIPTION OF WORK

A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the exterior wall insulation work as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

1. Foundation wall insulation system
2. Batt wall & roof insulation
3. Blown-in wall insulation
4. Rigid roof insulation

1.3 RELATED SECTIONS

A. Construction waste management – Section 017419.

B. Sheet Metal Flashing - Section 07 61 00.

C. Masonry Restoration - Section 04 01 21.

1.4 QUALITY ASSURANCE

A. Thermal Resistance: The thicknesses shown are for the thermal resistance (R-Value in accordance with ASTM C 177 or ASTM C 518) specified for each material. The R-Values specified are minimum acceptable. Provide adjusted thicknesses as directed for the use of material having a different thermal resistance.

B. Certification: Affidavit by the polystyrene thermal insulation manufacturer, certifying that the insulation was manufactured with CFC and HCFC-free blowing agents

1.5 SUBMITTALS

A. Product Data: Catalog sheets, specifications, and installation instructions for specified products.

1. Include data substantiating that insulation complies with the specified thermal resistance and vapor resistance qualities.

1.6 DELIVERY, STORAGE AND HANDLING

A. Do not allow insulation materials to become wet or soiled, or covered with ice or snow. Comply with manufacturer’s recommendations for handling, storage, and protection during installation.

B. Protect insulation materials subject to deterioration by sunlight from exposure to sunlight.

C. Complete the installation and concealment of insulation materials as rapidly as possible.

1.7 PROJECT CONDITIONS

A. Do not proceed with the installation of insulation on foundation walls until the following work is performed, or ready to be performed:

1. Required leveling of the wall surface and application of dampproofing is done and has been observed by the architect.

2. Masonry joints are prepared to receive flashing and flashing is ready to be performed.

B. Examine the substrate and the conditions under which all insulation Work is to be performed. Do not proceed with the insulation Work until unsatisfactory conditions have been corrected.

PART 2 PRODUCTS

2.1 MATERIALS - FOUNDATION INSULATION

A. Rigid (Board) Insulation for foundation wall: Extruded polystyrene (XPS) thermal insulation boards, with drainage channels; ASTM C 578, Type IV, manufactured with CFC and HCFC-free blowing agents.

1. Aged R-Value: 2 Inches Thick: R = 10.0 @ 40 degrees F and 10.0 @ 75 degrees F.

2. Adhesive for Bonding Insulation: The type recommended by the insulation manufacturer.

B. Wall surface leveling materials:

1. Cementitious leveling compound for use on concrete walls

2. Masonry mortar for patching and leveling stone masonry walls

C. Dampproofing: fluid-applied bituminous asphalt coating, ASTM D312, Type III or IV.

1. Asphalt primer: provide in accordance with ASTM D41/D41M and coating manufacturer's recommendations for concrete and stone walls

D. Protection board: Fiber-reinforced and impact-resistant Portland cement board warrantied for ground contact. Basis of design:

1. FINEX Multi-Purpose Fiber Cement Panels, manufactured by FINEX, Salaberry-de-Valleyfield, QC

2. Thickness: 1/2". Length: 4' minimum. Height: varies with grade level

3. Finish: smooth, natural concrete color

2.2 MATERIALS - WALL & ROOF INSULATION

A. Hemp Batt insulation: 90% hemp fiber/10% polymer/polyester fiber batts, R-value 3.69/in (R20 for 5.5" thickness). Complying products: HempWool batt, by Hempitecture Inc., Jerome ID https://buy.hempitecture.com/, NaturChanvre by MEM Inc., Montreal, Quebec https://www.memvegetal.com/isolant-naturchanvre/, or Thermo Hanf, HempFlax Building Solutions GmbH, Industriestraße 2, 86720 Nördlingen, Germany, www.thermo-hanf.de

B. Loose-fill insulation: blown-in 100% cellulose, initial R value 3.7, settled R value no less than 3.0, Class A flame spread ASTM E84, TimberFill by Timber HP, Sanctuary Cellulose Blown-In Insulation by Greenfiber, or Nu-Wool Premium Cellulose Insulation by Nu-Wood.

C. Rigid roof insulation: cellular Polyisocyanurate foam in board form, ASTM C1289 REV A Type II, fibrous felt or glass mat membrane both sides, R-value 5.7/in. Acceptable Manufacturers: Atlas

Roofing Coporation, Atlanta, GA, www.roof.atlasrwi.com; Hunter Panels, Portland, ME, www.hunterpanels.com; Sika Corporation, Lyndhurst, NJ, www.usa.sika.com

PART 3 EXECUTION

3.1 PREPARATION – GENERAL

A. Verify that all wall and roof surfaces and adjacent materials are dry and ready to receive insulation.

B. For Rigid (Board) Insulation for foundation wall:

1. Level surface irregularities in concrete and stone foundation walls that are greater than 1/2" deep, or that will compromise adhering the insulation to the wall

2. Ensure that dampproofing coverage on walls is complete and there are no holes or punctures. Apply dampproofing around pipe or other wall penetrations and on pipe surfaces for 3" from face of the wall.

C. Close off openings in areas to receive loose insulation to permanently prevent escape of insulation.

3.2 INSTALLATION - GENERAL

A. Comply with manufacturer’s printed instructions for the particular material and conditions of installation in each case. If printed instructions are not available or do not apply to the project conditions, consult the manufacturer’s technical representative for specific recommendations before proceeding with the work.

B. Extend insulation full thickness over entire surface to be insulated. Apply a single layer of insulation of the required thickness, unless otherwise indicated or required to make up the total thickness. Cut and fit tightly around obstructions, and fill voids with insulation.

3.3 INSTALLATION – FOUNDATION INSULATION

A. Extend insulation full thickness over entire surface to be insulated. Apply a single layer of insulation of the required thickness, unless otherwise indicated or required to make up the total thickness. Cut and fit tightly around obstructions

B. Provide protection board from top of foundation insulation to 12' below grade. Use maximum length boards that are physically feasible for their location on the building to minimize visible joints. Install board with screws in accord with manufacturer's recommendations, up to 24" horizontal and vertical spacing for fasteners. Provide screws of sufficient length to penetrate through the insulation and 3/4" into the concrete or stone masonry. Cover the top row of fasteners with the wall base flashing.

3.4 INSTALLATION – BATT INSULATION

A. Store insulation in their packaging away from rain & sun. It is best to store inside in a cool dry place. If left outside, store pallets in original packaging and cover with a waterproof tarp. Please ensure no water or other materials gather on top.

B. For off standard dimensions, cut the batts with an added 1/2 - 3/4” width of the studs or roof rafter to ensure contact & friction fit between the studs or rafters.

C. Make sure the batts are tightly butt jointed & fill the cavity completely. There should be no gaps in the insulation. Never install insulation with direct contact to heat emitting sources, such as appliances, fireplaces, or recessed lighting. Insulation must be kept a minimum of 6” away from heat sources.

D. Adjust the insulation panel ends to butt them together & fill the cavity completely with no gaps.

3.5 INSTALLATION – LOOSE-FILL INSULATION

A. Place loose fiber insulation into spaces and onto surfaces, either by pouring or by machine-blowing. Level horizontal applications to uniform thickness as indicated, firmly settled to uniform density, but not excessively compressed.

3.6 INSTALLATION – RIGID ROOF INSULATION

A. Install insulation boards across the inside rafter surface. Use maximum board lengths to minimize number of joints. Locate joints square to rafters and center end joints over rafters. Provide additional blocking as necessary. It is not necessary to stagger board joints. Butt board edges together tightly, and carefully fit around openings and penetrations.

B. Use screws or nails with washers or caps that are at least 1 inch in size. The fasteners must be long enough to go into the rafter by at least ¾ inch.

END OF SECTION

SECTION 07 31 13

ASPHALT SHINGLE ROOFING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 DESCRIPTION OF WORK

A. The Work of this Section includes all labor, materials, equipment, and services necessary for complete replacement of asphalt shingle roofing system work as shown on the drawings and/or herein, including but not necessarily limited to the following:

1. Asphalt shingle roofing

2. Roof underlayment

3. Copper snow guards

1.3 RELATED SECTIONS

A. Construction waste management – Section 01 74 19.

B. Wood nailers and blocking – Section 06 10 00.

C. Wood trim – Section 07 46 00.

D. Flashing – Section 07 61 00.

E. Joint sealers – Section 07 90 00.

1.4 QUALITY ASSURANCE

A. Fire Resistance Rating: The asphalt shingle roof system shall have an Underwriters Laboratories External Fire Resistance Rating as follows:

1. Asphalt Fiberglass Shingles: UL Class A.

2. Asphalt Organic Shingles: UL Class C.

B. Wind Resistance Rating: The asphalt shingle roof system shall have an Underwriters Laboratories “Wind Resistant” label.

C. Shingle packages shall bear the UL fire resistance and wind resistant labels.

D. Pre-Roofing Conference: Before the roofing Work is scheduled to commence, a conference will be called by the Owner’s Representative at the Site for the purpose of reviewing the Drawings and the Specifications and discussing requirements for the Work. The conference shall be attended by the Contractor, and the roofing applicator.

1.5 SUBMITTALS

A. Submittals Package: Submit the product data, samples, and quality control submittals specified at the same time as a package.

B. Product Data: Catalog sheets, specifications, and installation instructions for each material specified.

C. Samples:

1. Roof Shingles: One shingle selected from each of the manufacturer's standard colors.

2. Cap Shingle: One shingle to match specified roof shingle color.

3. Nails: Two each type.

4. Ice & Watershield Membrane: Two 6 inch sq pieces.

D. Shop Drawings: Provide Shop Drawings that show manner of securing metal snow guards to roofing and Manufacturer's recommended layout and spacing. All shop drawings shall be to scale and dimensioned.

E. Quality Control Submittals; Manufacturer's Warranty: Sample copy of the shingle manufacturer's warranty.

F. Mockups: Incorporate materials and methods of fabrication and installation identical with project requirements for review and inspection of installation and standard of workmanship for approval by the Architect. Mockup is to be approximately 150SF of asphalt roofing in place and incorporate mockup specified in Section 07 21 00. Do not proceed substantial work until mockup has been approved by Architect.

1. Approved mockups can remain as finished work.

G. Contract Closeout Submittals: Warranty and proof of purchase (dated itemized sales receipts or invoices) for warrantied materials.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the Site in manufacturer's labeled, unbroken containers.

B. Store materials on raised platforms protected from the weather with waterproof covers.

C. Do not stack bundles of shingles more than 4 feet high.

D. Store roll goods on end.

1.7 PROJECT CONDITIONS

A. Install roofing underlayment and shingles only under weather conditions recommended by the Manufacturers.

B. Do not install underlayment or shingles on wet or frozen surfaces.

C. Do not apply shingles when air temperature is below 40 degrees.

D. Moisture Protection:

1. Cover, seal or otherwise protect the roof and flashings so that water cannot accumulate or flow under completed portions. When and where necessary to accomplish this, provide temporary water cut-offs.

2. Limit the removal of existing materials to areas that can be completely re-roofed or temporarily protected within the same day.

1.8 WARRANTY

A. Special Warranty: For the Work of this section, the installer shall provide a written warranty for two (2) years from date of completion guaranteeing materials and workmanship for watertightness, weathertightness and against all leaks. Defective work includes leaking, failure to stay in place, pulling loose from substrate, splitting, buckling, tearing, and release or failure of fasteners.

B. Manufacturer's Warranty: In addition to the two (2) year period specified above, furnish the shingle manufacturer's warranty certifying that the shingles will not warp, shrink, or deteriorate, and that they are free from manufacturing defects as follows: 40 year warranty

PART 2 PRODUCTS

2.1 COMPANIES

A. CertainTeed Corporation, Roofing Products Group, P.O. Box 860, Valley Forge, PA 19482, (610) 341-7000, www.certainteed.com.

B. Owens Corning, One Owens Corning Parkway, Toledo, OH 43659, (800) 438-7465, www.owenscorning.com.

C. GAF/Elk Corporation, 1361 Alps Road, Wayne, NJ (732) 398-2671, www.gaf.com.

2.2 MATERIALS

A. Architectural Asphalt Shingles:

1. UL Classified, fiberglass or organic, laminated, no cut out, 3 dimensional, self sealing wind resistant shingle with minimum 40 year warranty, ASTM D 3462.

a. Timberline HDZ by GAF/Elk Corporation, Landmark Pro Shingles by CertainTeed Corporation, or Oakridge Shingles by Owens Corning.

2. Algae Protection: Manufacturers maximum protection.

3. Color: GAF Weathered Wood or Architect approved selection from the manufacturer's standard colors.

4. Underlayment: No. 30 asphalt saturated felt, non-perforated, ASTM D 226.

5. Starter Course: asphalt shingles with tabs removed.

B. Ice & Watershield Membrane: Self adhering, self sealing, rubberized asphalt sheet membrane with slip resistant surface and manufacturer's primer for masonry surfaces (if any).

1. Thickness: 40 mils minimum, ASTM D 3767 Method A.

2. Tensile strength: 250 psi minimum, ASTM D 412.

3. Elongation: 250 percent minimum, ASTM D 412 (Die C Modified).

4. Permeance: 0.05 Perms maximum, ASTM E 96.

a. Grace Ice & Water Shield by Grace Construction Products, AC POLY Ice and StormSeal by NEI, or Blueskin RF200 Ice & Water Barrier by Henry Company.

5. See Section 07 61 00 for High Temperature Ice & Watershield Membrane.

C. Shingle and Underlayment Fasteners:

1. Nails: Galvanized, 11 or 12 gage, barbed shank roofing nails with 3/8 inch minimum diameter head, and a sufficient length to penetrate through the roofing materials and a minimum 3/4 inch into the roof sheathing.

D. Plastic Cement: Flashing grade, fibrated asphalt roofing cement, ASTM D 4586.

E. Sealants: Per Asphalt Shingle Roofing Manufacture's requirements or recommendations.

F. Snow Guards: Strap, hood and gusset or shoe type snow guard.

1. Material: copper

2. Manufacturer & model: PD10 Half Round Pad-Style Snow Guard by Alpine SnowGuards, 289 Harrel St., Morrisville, VT 05661, www.alpinesnowguards.com, MJ Mullane 300S-AS Snow Guard by Berger Building Products, 805 Pennsylvania Blvd., Feasterville, PA 19053, www.BergerBP.com, or Architect approved equal.

PART 3 EXECUTION

3.1 PREPARATION

A. Remove existing shingles, underlayment, and incorporated flashings down to wood and plywood deck in the areas indicated on the drawings.

B. Clean and dry all substrates before installing the Work of this Section & related flashing.

C. Examine roof decks for deterioration and document areas and quantities which require replacement. Contractor shall obtain concurrence of the Architect as to the extent of replacement prior to proceeding.

1. In general, wood deck boards, or sections of boards, which are missing, broken, split lengthwise, rotted or "punky" should be replaced.

D. Secure loose or warped wood boards and sheathing with nails. Set all protruding nails flush with boards.

E. Fill knotholes or minor voids in decking or sheathing. Clean existing substrate of any projections and substances detrimental to installation of roofing.

F. Coordinate installation of roofing with deck repairs, flashing, roof penetrations, and work adjoining roof to ensure proper sequence of installation.

G. Do not proceed with application of shingles until surfaces are dry, free of debris and protruding nails, and properly supported for shingle nailing and application.

3.2 MOISTURE PROTECTION

A. Cover, seal or otherwise protect the roof and flashings so that water cannot accumulate or flow under completed portions. When and where necessary to accomplish this, provide temporary water cut-offs.

B. Limit the removal of existing materials to areas that can be completely re-roofed or temporarily protected within the same day.

3.3 APPLICATION - UNDERLAYMENTS

A. Installing Ice & Watershield Membrane:

1. Install membrane directly on clean, dry, continuous structural deck per manufacturer's instructions.

2. Broom clean the deck surface before installation.

3. Apply the membrane manufacturer's primer over masonry wall surfaces (if any), before installing membrane. Lap edges and ends a minimum of 6 inches. Press membrane into place. Cut out and patch blisters. Roll edges and ends to insure complete adhesion.

4. Tack the membrane in place if it does not adhere immediately to the deck.

5. Eaves & Rakes: Unless shown otherwise on the drawings extend the membrane from the roof edge to a line a minimum of 3 feet beyond the interior face of the building wall.

6. Valleys: Unless shown otherwise on the drawings, install the membrane centered on the valley so that the flashing sheet extends a minimum of 3 feet on each side of the valley center line.

7. Chimneys, Intersecting Walls, Curbs, Pipe Penetrations, and other miscellaneous penetrations: Unless shown otherwise on the drawings, install membrane a minimum of 6 inches up the vertical surfaces. Extend the membrane a minimum 2 feet onto the roof surface.

B. Installing Underlayment:

1. Slopes 4 Inches Per Foot and More: Install one ply of underlayment over the entire surface to be shingled. Lap edges a minimum of 2 inches and ends a minimum of 6 inches.

2. Slopes Less Than 4 Inches Per Foot: Install 2 plies of underlayment over the entire surface to be shingled. Install underlayment shingle fashion, lapping each ply 19 inches over the preceding ply.

3. Install the underlayment parallel to the eaves. Secure the underlayment with only enough fasteners to hold it in place until the shingles are installed.

4. At eaves install the underlayment over the metal drip edge, at rakes install the underlayment beneath the metal drip edge.

C. Installing Asphalt Shingles:

1. Except as shown or specified otherwise, layout, install, and fasten the shingles in accordance with the shingle manufacturer's instructions and specifications.

2. Fastening:

a. Install 6 fasteners per shingle.

b. Staples will not be allowed.

c. Do not install shingles when ambient temperature is below 40 degrees Fahrenheit.

3. Eaves: Start shingles at eaves with a starter course. Overlap perimeter edge flashing 1/2 inch.

4. Valleys: Lap shingles over the metal valley flashing 6 inches. Lay the shingles so that the exposed portion of the valley, at the top, is 6 inches wide on each side of the valley center line, and increases in width 1/8 inch per foot towards the eaves. Cut off one inch of the upper outside corner of each shingle. Set the portion of the shingle that overlaps the valley in plastic cement.

5. Stepped Metal Base Flashing: Interlace shingles with the base flashing. Lap shingles a minimum of 6 inches over the base flashing. Set the portion of the shingle that overlaps the base flashing in plastic cement.

6. Continuous Metal Base Flashing: Lap the shingles a minimum of 8 inches over the base flashing. Set the portions of the shingle that overlaps the base flashing in plastic cement.

7. Hips and Non-Vented Ridges: Form the hips and ridges with pieces cut from the roof shingles or use the manufacturer's hip and ridge shingles. Secure each shingle with one nail on each side, 5-1/2 inches back from the exposed end and one inch up from the edge.

3.4 INSTALLATION OF METAL FLASHING

A. Install metal flashings and trim to comply with requirements in Section 076100 "Sheet Metal Flashing and Roofing."

3.5 INSTALLATION OF ASPHALT SHINGLES

A. Install asphalt shingles in accordance with manufacturer's written instructions and recommendations in NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."

B. Install starter strip along lowest roof edge, consisting of an asphalt shingle strip with tabs removed with self-sealing strip face up at roof edge.

1. Extend asphalt shingles 1/2 inch over fascia, past end of drip edge at eaves and rakes.

2. Install starter strip along rake edge.

C. Install first and remaining courses of three-tab-strip asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.

D. Fasten asphalt shingle strips with a minimum of six roofing nails, but not less than the number indicated in manufacturer's written instructions for roof slope and design wind speed indicated on Drawings and for warranty requirements specified in this Section.

1. Locate fasteners in accordance with manufacturer's written instructions.

2. Where roof slope is less than 4:12, hand seal self-sealing asphalt shingles to improve the shingles' positive bond by applying asphalt roofing cement spots between course overlaps after nailing the upper course.

E. Open Valleys: Cut and fit asphalt shingles at open valleys, trimming upper concealed corners of shingle strips.

1. Widen exposed portion of open valley 1/8 inch in 12 inches from highest to lowest point.

2. Extend shingle a minimum of 6 inches over valley metal.

3. Set valley edge of asphalt shingles in a 3-inch wide bed of asphalt roofing cement.

4. Do not nail asphalt shingles to metal open-valley flashings.

F. Hip and Ridge Shingles: Maintain same exposure of cap shingles as roofing-shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds.

1. Fasten with roofing nails of sufficient length to penetrate sheathing.

2. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.

3.6 INSTALLATION OF SNOW GUARDS

A. Inspect structure on which snow guard system is to be installed and verify that it will withstand any additional loading it may incur. Notify Architect of any deficiencies before installing snow guards.

B. Verify that roofing material has been installed correctly prior to installing snow guards.

C. Comply with snow guard Manufacturer’s recommendations for location of system. Comply with Manufacturer's written installation instructions for installation and layout.

3.7 CLEANING

A. Clean debris from finished roofs.

B. Remove from site all materials discarded from roofing operations, including containers.

END OF SECTION

SECTION 07 46 00

WOOD SIDING AND TRIM

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 DESCRIPTION OF WORK

A. Extent of the work is shown on the drawings and includes removals with salvage, repair, and replacement of:

1. Wood siding
2. Exterior wood panels
3. Exterior wood trim
4. Exterior wood ceiling

B. Salvage and reuse siding, trim (including lattice) and/or ceiling boards 3ft. or longer in length that are sound, meaning boards that have no decay, cracks, or broken edges. Do not salvage existing exterior plywood panels.

1.3 RELATED SECTIONS

A. Rough and Finish Carpentry - Section 06 10 00

B. Wood Windows - Section 08 52 00

C. Wood Doors and Finish Hardware- Section 08 14 00

D. Painting and Finishing - Section 09 90 00

1.4 SUBMITTALS

A. Product Data: manufacturer’s or supplier’s product data for all products specified

B. Samples: 2 samples each type or profile of board, 2'-0" length

C. Mock up: provide one full-size mock-up of wood siding and trim in conjunction with wood window mock-up specified in Section 08 52 00. Include profiled trim to match a template made from historic window trim on the building. “Similar” manufactured siding and trim profiles are not acceptable.

1.5 QUALITY ASSURANCE

A. Material Certification: All wood shall bear mill stamp, certifying type, grade as applicable, and grading agency.

B. Sustainability: All wood shall have FSC (Forest Stewardship Council) certification or an alternative certification acceptable to the architect and owner, demonstrating it was produced under sustainable forest management and certifying its chain of custody.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Keep materials dry during delivery. Store materials 6 inches minimum above ground surface. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber, and provide air circulation between stacks.

B. Cover stored materials until ready for use for protection from moisture. Place and anchor covering in a manner that will assure good ventilation under the covering.

1.7 PROJECT CONDITIONS

A. Correlate location of supporting members to allow proper attachment of the work. Notify the architect of any inadequate or deteriorated conditions in existing framing to which the work will be attached. Do not install siding or trim until such conditions are corrected.

B. Field verify all existing dimensions and conditions with which siding and trim work must be joined or coordinated. Cutting and sizing of members shall not be based on typical or average dimensions or conditions. Siding and trim shall fit snugly in each location without the use of shims or fillers.

PART 2 PRODUCTS

2.2 SIDING

A. Replacement siding shall match the dimensions and profile of the existing siding in the area of the building in which it is located. Four types of siding are present on the building

B. Siding Type A, the typical clapboard on most of the building

1. Nominal size & exposure: 12 3/4" wide, 7/8" thick, with 11 1/2" exposure

2. Profile: lapped (clapboard)

3. Species: Douglas Fir

C. Siding Type B, located on the first floor of the north elevation

1. Nominal size & exposure: 15/16" thick, with 10" exposure

2. Profile: shiplap, with surface-applied lattice

3. Lattice: 1x strips to match existing, with one beaded edge

4. Species: Douglas Fir or Western Red Cedar are acceptable

D. Siding Type C, located on dormer walls

1. Nominal size & exposure: 7" wide, 1/2" thick, with 5 1/2" exposure

2. Profile: lapped (clapboard)

3. Species: Douglas Fir

E. Siding Type D, located on the walls of the former porch on the west wing

1. Nominal size & exposure: 1/2" thick, with 8" exposure

2. Profile: lapped (clapboard)

3. Species: Douglas Fir or Western Red Cedar are acceptable

F. Siding shall be fabricated of solid lumber with

1. Smooth surface

2. Maximum moisture content: 15%

2.3 WOOD PANELS

A. Single-piece wood panels shall be provided as indicated on the drawings, generally below first floor banks of windows and on dormers.

1. Width and height to fill the complete panel opening, with applied trim 100% overlapping the panel

2. Thickness: 3/4", or to match historic panel thickness if less than 3/4" thickness

3. Panels shall have a single-piece face veneer and back veneer, with no joints

4. New wood panels on the first floor shall match extant historic panels, and their trim, located below window 134

B. Material: Marine grade MDO plywood, with hardwood faces

1. Core: veneer core, cross banded

2. Face species: any hardwood species

3. Exterior face grade: Medium Density Overlay, grade B for Baltic Birch, grade A for other species

4. Concealed (back) face grade: grade BB for Baltic Birch, grade 2 for other species

2.4 WOOD CEILING

A. Species: Clear Pine

B. Size & Profile: 2 ¼”x ¾” tongue and groove with bead on one edge.

2.5 TRIM

A. Width and thickness of trim, including decorative wood components such as pilasters, capitals, cornices and moldings, is as indicated on the drawings. New/replacement trim shall match the profile of the historic trim for the portion of the building on which it is located, e.g. the wing and/or floor where located. Profiles shall be matched using templates of the historic trim.

B. Wood boards for trim, moldings, and decorative wood:

1. Solid lumber, quarter sawn

2. Smooth surface

3. Maximum moisture content: 15%

4. Species: Douglas Fir, or African Mahogany (Kyaya Ivorensis)

5. Grade: 100% clear one face over the length of installed boards

2.6 MISCELLANEOUS MATERIALS

A. Building paper/wrap: 15-pound asphalt impregnated felt

B. Fasteners:

1. Nails: (10d) 316 stainless steel nails, lengths as required to penetrate supporting members minimum of 1 ½". (8d) may be used if ring or spiral shank.

2. Bolts & miscellaneous fasteners: hot dipped zinc coated, sizes & types as shown or recommended for particular application.

2.7 FABRICATION

A. Siding and trim work shall be fabricated and installed with boards the full length or height required for each member up to 12' in length.

1. Trim boards and siding shall be fabricated using templates made from each profile of historic trim and siding to be matched. "Similar" manufactured trim and siding profiles are not acceptable.

B. Fabricate all siding and trim boards in the shop. Wood panels may be cut to size in the field.

C. Shop prime all boards and panels before delivery to the site, including priming the backs and edges/ends.

PART 3 EXECUTION

3.2 REMOVALS AND PREPARATION

A. Remove siding and trim boards indicated for replacement on the drawings. Remove all plywood material, exposed or concealed.

B. Do not proceed with application of siding or trim until all substrates are dry, free of all debris and protruding nails, and properly supported for siding nailing and application

1. Provide horizontal 1 x 2 furring over existing gypsum sheathing

C. Install building wrap prior to siding installation at the following locations:

1. Dormer front and side walls

2. First floor locations where siding replacement area exceeds five (5) square feet

3.3 INSTALLATION

A. General: Conform to the standards for carpentry execution as specified in Rough and Finished Carpentry, Section 061000

B. Installing siding:

1. Use full length boards wherever possible. Where joints are required, stagger joints between rows of siding a minimum of 1'-0"

2. Square cut ends of boards to finished length, prime end cuts, and snugly fit boards end to end.

3. Provide nailing spacing and pattern as recommended by WWPA for the type of siding. Nails shall penetrate solid lumber sheathing or studs min. 1 ½"and solid lumber furring by 3/4"

4. Set and fill nail holes with exterior grade wood putty, matching siding and suitable for paint finish.

C. Installing trim and moldings:

1. Use full-length board for each piece of trim.

2. Square cut ends of boards to finished length, and prime end cuts.

3. Apply a continuous bead of caulk to the perimeter of the backside of each trim piece before nailing

4. Nail with 2 nails side by side, min. 2 ½" – 3" apart for boards up to 6" wide; min. 3 nails for boards over 6" wide and up to 10" wide.

5. Nail within 1 ½" – 2" of all board ends.

6. Nails shall penetrate solid lumber minimum of 1 ½"

7. Set and fill nail holes with exterior grade wood putty, matching siding and suitable for paint finish.

D. Prime field cuts the same day as boards are installed.

END OF SECTION

SECTION 07 61 00

SHEET METAL FLASHING AND ROOFING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete sheet metal flashing and roofing as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

1. Copper flashing, drip edge, reglets, window & door flashing, and wall base flashing
2. Flat seam copper and zinc-coated copper roofing
3. Chimney crickets
4. Copper chimney caps
5. Zinc-coated copper flashing on dormer cresting.
6. Copper gutters, downspouts, screens, outlets, mounting brackets & hardware, and accessories
7. Sheet underlayment, slip sheet, high temperature ice & water shield membrane

1.3 RELATED SECTIONS

A. Construction waste management – Section 01 74 19.

B. Masonry pointing – Section 04 01 40.

C. Wood deck, nailers, and blocking – Section 06 10 00.

D. Asphalt shingle roofing – Section 07 31 13.

E. Wood trim – Section 07 46 00.

F. Joint sealers - Section 079200.

1.4 REFERENCES

A. SMACNA: Sheet Metal and Air Conditioning Contractors' National Association, www.smacna.org.

B. CDA: Copper Development Association Inc., www.copper.org

C. ASTM: ASTM International, 100 Barr Harbor Dr., www.astm.org.

1.5 SUBMITTALS

A. Product Data: Catalog sheets, specifications, installation instructions for each item specified except for shop or job formed items, flux, and bituminous paint.

B. Shop Drawings: Show manner of forming, joining, and securing metal roofing and flashing, and pattern of seams. Include expansion joint connections, and the method of forming waterproof

connections to adjoining construction. All shop drawings shall be to scale and dimensioned. Provide shop drawings for the following:

1. Flashings and reglets
2. Valley flashing
3. Gutters and downspouts including outlet diffusors and connectors, showing mounting and attachment to existing walls and existing subsurface boots.
4. “Yankee” Gutters
5. Diverter
6. Drainage pans
7. Dormer cresting flashing including all field dimensions
8. Bay window roof
9. Infill roof & flashing at east wing
10. Chimney crickets
11. Chimney caps including field measurements of existing caps

C. Samples:

1. Sheet metal: Two 6 inch sq pieces, for each type material specified.

D. Mock-ups: Following review of Shop Drawings, Product Data and Samples incorporate materials and methods of fabrication and installation identical with project requirements for review and inspection of installation and standard of workmanship for approval by the Architect. Do not proceed substantial work until mock-up has been approved by Architect. Approved mock-ups can remain as finished work. Mock-up is to include:

1. One full “Yankee” Gutter run from and including expansion joint at apex to outlet in conjunction with mock-up specified in Section 07 31 13.
2. One Drainage pan and sidewall flashing in conjunction with mock-up specified in Section 07 31 13.
3. Approximately 35SF of flat seam roofing or one full dormer roof.

1.6 QUALITY ASSURANCE

A. In addition to complying with pertinent codes and regulations, comply with pertinent recommendations contained in current edition of "Architectural Sheet Metal Manual" published by the SMACMA.

B. Manufacturer’s Recommendations: For factory fabricated items, follow the manufacturer’s recommendations and installation instructions unless specifically shown or specified otherwise.

C. Field verify all existing dimensions and conditions to which sheet metal work will be fitted.

D. Standard commercial items may be used for flashing, trim, reglets, and similar purposes provided such items meet or exceed the quality standards specified.

E. Where no gage is indicated on the drawings or in the specifications, provide the highest quality and gage commensurate with the referenced standards.

F. All workmen shall be qualified and experienced in the particular type of work to be performed including; fabrication, soldering, cleaning, and/or patching

1.7 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading: Protect finish panel faces.

B. Acceptance at Site: Examine each panel and accessory as delivered and confirm that finish is undamaged. Do not accept or install damaged panels.

C. Store metal sheets, coils and formed shapes off the ground, in an enclosed structure. Do NOT store in a manner or location so that the water or moisture may remain between sheets or shapes prior to installation. Do NOT store on bare ground under a tarp or in other manner that may cause condensation to form on or between sheets or shapes.

D. Handle sheets and shapes in a manner to reduce scratches, dents, etc.

1.8 WARRANTIES & GUARANTEES

A. Guarantee that all metal roofing, flashing, sheet metal fabrications, gutters, downspouts, and trim components will be free from defects in workmanship for five (5) years from date of completion. Defective work includes leaking, failure to stay in place, pulling loose from substrate, splitting, alligatoring, buckling, tearing, failure of solder joints, and release or failure of fasteners.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering materials that may be incorporated in the Work include, but are not limited to, the following:

1. Hussey Copper, Ltd.

2. KME America

3. Aurubis Buffalo, Inc.

4. PMX Industries Inc.

5. Revere Copper Products, Inc.

2.2 MATERIALS

A. Copper Roofing Sheets: Cold-rolled copper sheet complying with ASTM B370 temper H00, unless otherwise indicated, and as follows:

1. Weight: 20 oz. per sq. ft. (0.0270-inch thick) (0.69 mm) unless otherwise indicated.

B. Zinc-Tin Coated Copper Sheet: Cold rolled copper, ASTM B370. Fifty percent Zinc, 50 percent Tin coating; ASTM B 350, Type 1 0.5 mils thick per sq ft applied to both sides.

1. Weight: 20 oz. per sq. ft. (0.0270-inch thick) (0.69 mm) unless otherwise indicated.

2. Acceptable products complying with all material and performance specifications herein or approved equal.

a. Freedom Gray®, Revere Copper Products, Inc

b. TECU® Zinn, KME America

C. Accessories: Except as indicated as work of another specification Section, provide components required for a complete roof system, including trim, copings, fascias, ridge closures, cleats, seam covers, battens, flashings, gutters, louvers, sealants, gaskets, and closure strips. Match materials and finishes of roof.

1. Sealing Tape: Pressure-sensitive 100 percent solids polyisobutylene compound sealing tape with release paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.

2. Cleats: 16 or 20 oz ounce cold rolled copper, as required to sustain loads 2-inch wide x 3-inch long.

a. Concealed type as indicated in the "Copper in Architecture" handbook published by the Copper Development Association (CDA) for flat-seam and standing seam spaced as indicated on the Drawings or if not indicated on 12 inch centers minimum.

b. Fabricate cleats to allow thermal movement of copper roof panels while preventing copper panel distortion due to wind uplift forces.

3. Trim, Closure Pieces, and Accessories:

a. Same material, thickness, and finish as adjacent copper roof panels, brake formed to required profiles.

b. Comply with standards conforming to recognized industry standard sheet metal practice.

D. Bituminous Coating: SSPC - Paint 12, Cold-Applied Asphalt Mastic (Extra Thick Film), nominally free of sulfur, compounded for 15-mil dry film thickness per coat.

E. High Temperature Grade Water Barrier Underlayment: Cold applied, self-adhering membrane composed of a high density, cross laminated polyethylene film coated on one side with a layer of butyl rubber or high temperature asphalt adhesive. Provide primer when recommended by water barrier manufacturer.

1. Minimum Thickness: 30 mil.

2. Tensile Strength: ASTM D412 (Die C Modified); 250 psi.

3. Membrane Elongation: ASTM D412 (Die C Modified); 250%

4. Permeance (Max): ASTM E96; 0.05 Perms.

5. Acceptable Products:

a. Blueskin PE 200 HT, Henry.

b. Ultra, Grace Construction Products.

c. CCW MiraDRI WIP 300 High Temperature, Carlisle Coatings and Waterproofing.

F. Roofing Felt Underlayment: Asphalt saturated felt weighing not less than 30 lbs per 100 square feet.

G. Paper Slip Sheet: Minimum 4-lb. red rosin-sized building paper.

H. Nails for Wood Substrates: Copper or hardware bronze, 0.109 inch minimum not less than 7/8 inch long barbed with large head.

I. Screws & Bolts: Copper, bronze, brass, or passivated stainless steel (300 Series) of sufficient size and length to sustain imposed stresses.

J. Solder:

1. Copper to copper or copper to patinated copper solder: ASTM B32 Sn50.

2. Zinc-Tin coated copper to copper and zinc-tin coated copper to zinc tin coated copper: ASTM B32 pure tin or lead-free, high-tin solder.

K. Flux: Muriatic acid neutralized with zinc or approved brand of soldering flux.

L. Rivets:

1. Pop Rivets: 1/8-inch to 3/16-inch diameter, with solid brass mandrels.

2. Provide solid copper rivet (tinner's rivets) where structural integrity of seam is required.

M. Gutters and Downspouts:

1. Plain Copper: Cold rolled copper, ASTM B 370.

2. Components:

a. Hung Gutter: half-round gutters, sizes as shown on Drawings; 20 oz.

b. Downspouts: corrugated, sizes as shown on Drawings; 20 oz.

c. Conductor Heads: 20 oz.

d. Outlet Tube, Offsets, and Elbows: 20 oz.

e. Continuous Cleats: 20 oz.

f. Gutter Hanger Brackets: One inch x 3/16 inch brass or copper bar.

g. Gutter Braces: One inch x 1/8 inch brass or copper bar.

h. Gutter Stiffener: 3/4 inch x 1/8 inch brass or copper bar.

i. Downspout Support Hanger: One inch x 1/16 inch brass or copper bar.

j. Gutter guards: Copper mesh with stainless steel clips

k. Wire Strainers: Bronze wire ball

3. Fasteners:

a. Nails: Hardened copper "Stronghold" type, large flathead roofing nail.

b. Screws, Bolts, and Other Fastening Accessories: Hardened copper or brass.

c. Rivets: Copper, minimum diameter 3/16 inch.

N. Chimney Caps: Top-mounted cap designed to cover the entire top of the stone coping, in profile and dimensions to match existing. Provide ¼" copper mesh screen covering the vent openings on all sides.

O. Miscellaneous Materials: Provide materials and types of fasteners, solder, protective coatings, separators, sealants and accessory items as recommended by copper sheet manufacturer for copper roofing work, except as otherwise indicated.

PART 3 EXECUTION

3.1 PREPARATION

A. Coordinate the Work of this Section with other Work for the correct sequencing of items that make up the entire system of weatherproofing or waterproofing.

B. Do not install the Work of this Section unless all necessary nailers, blocking and other supporting components have been provided.

C. Clean and dry all substrates before installing the Work of this Section. Confirm that substrate system is even, smooth, sound, clean, dry, and free from defects.

D. Provide protection of all metals during installation and cleaning of masonry with tarps, polyethylene sheeting, or similar impervious materials. To prevent water stains due to condensation trapped on metal's surface, protection must be removed at the end of each workday.

E. Verify roof openings, pipes, sleeves, ducts, and vents through roof are solidly set, cant strips and reglets in place, and nailing strips located.

F. Water Barrier Underlayment:

1. Install high temperature grade water barrier on clean, dry roof substrate.

2. Remove dust, dirt, and loose fasteners.

3. Remove protrusions from the deck area.

4. Verify substrate has no voids, damaged, or unsupported areas.

5. Repair voids or unacceptable areas before installing membrane.

6. Prime substrates with manufacturer's approved primer if required for proper installation of membrane over substrate.

7. Install membrane in strict accordance with manufacturer's printed application procedures, precautions, and limitations.

8. Start application at low points and lap membrane shingle fashion to prevent water penetration.

9. Membrane Underlayment: Apply horizontally, lapping preceding layer not less than 4 inches. End lap membrane not less than 6 inches.

a. Maximize adhesion to substrate by brooming or rolling membrane in place after placement.

b. Center membrane at valleys, hips, and ridges.

G. Roofing Felt Underlayment:

1. Install underlayment over solid substrates with horizontal overlaps and endlaps staggered.

2. Lay parallel to ridge line with 2-1/2 inch sidelaps and 6 inch endlaps.

3. Start application at low point, working up deck laying plies in shingle fashion.

4. Fasten underlayment with copper roofing nails spaced on 12 inch centers maximum.

H. Install underlayment and paper slip sheet on substrate under copper roofing to greatest extent possible unless otherwise recommended by manufacturer of sheet metal. Paper slip sheets must be installed over the underlayment. Use adhesive for temporary anchorage, where possible, to minimize use of mechanical fasteners under copper roofing. Lap joints 2 inch minimum.

3.2 FABRICATION

A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of the "Copper in Architecture" handbook published by the Copper Development Association (CDA) and other recognized industry practices. Fabricate for waterproof and weather-resistant performance with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrate. Comply with material manufacturer's instructions and recommendations for forming material. Form exposed copper work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

1. Fabricate to allow for adjustments in field for proper anchoring and joining.

2. Form sections true to shape, accurate in size, square, free from distortion and defects.

3.3 INSTALLATION

A. Manufacturer's Recommendations: Except as otherwise shown or specified, comply with recommendations and instructions of manufacturer of copper being fabricated and installed.

B. General:

1. Separate dissimilar metals by painting each metal surface in area of contact with a bituminous coating, by applying rubberized asphalt or butyl underlayment to each metal surface, or by other permanent separation as recommended by manufacturers of dissimilar metals.

   a. Seal exterior joints between flashing and adjacent dissimilar materials.

2. Form and fabricate sheets, seams, strips, cleats, valleys, ridges, edge treatments, integral flashings, and other components of copper roofing to profiles, patterns, and drainage arrangements shown and as required for permanently leakproof construction. Provide for thermal expansion and contraction of the work, as indicated. Seal joints as shown and as required for leakproof construction. Shop-fabricate materials to greatest extent possible.

3. Sealant-Type Joints: Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1-inch into sealant. Form joints to conceal sealant completely. When ambient temperature is moderate at time of installation, 40 degrees to 70 degrees F, set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher or lower ambient temperatures. Do not install sealant-type joints at temperatures below 40 degrees F. Comply with requirements of Section 07 90 00 “Joint Sealers” for handling and installing sealants.

4. Fabricate and install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks considering temper and reflectivity of metal. Provide uniform, neat seams with minimum exposure of solder, and sealant. Except as otherwise shown, fold back sheet metal to form a hem on concealed side of exposed edges.

5. Conceal fasteners and expansion provisions where possible in exposed work, and locate so as to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

6. Cleats: Fabricate cleats and starter strips of same material as sheet, interlockable with sheet in accordance with CDA recommendations.

7. Tin uncoated copper surfaces and cleats at edges of flat seam panel sheets to be soldered, for a width of 1-1/2 inch, using solder recommended for copper work.

8. Soldering of sheet metal joints: Remove any factory finish, dirt, grease or other surface contamination to bare metal. Clean, flux and tin all surfaces to be soldered. Sweat solder thoroughly into seams, completely filling the seam for the full width. Upon completion of soldering, remove all traces of flux residue, and if required, apply a neutralizing wash followed by a clean water wash.

    a. For Zinc-tin coated copper, follow manufactures recommendations and instructions for preparing and soldering surfaces. If instructions are not given, mechanically clean product to produce a bright, unoxidized surface. DO NOT remove the Zinc-tin coating.

C. Flat Seam Roofing:

1. Install copper work in accordance with the "Copper in Architecture" handbook published by the Copper Development Association (CDA).

2. Flat Seam Metal Roof Panels: Fasten system to substrate with concealed metal cleats and screws/nails at spacings required to resist code required wind uplift.

3. Align, level, and plumb system with structure.

4. Fasten cleats using cleats mated to folded flat seams and fastener pattern to resist design loads with screws or barbed nails of sufficient length to penetrate substrate.

5. Fully seat adjacent panel to on two sides to achieve continuous engagement of seam joint.

D. Flat Lock Soldered ("Flat Seam Soldered") Seam Roofing:

1. Unless otherwise indicated, minor flat, pitched, or curved surfaces, such as crickets, bulkheads, dormers, and small decks, must be covered or flashed with 18 x 24 inch metal sheets and must be secured with cleats. One ply of felt covered with 1 ply of slip sheet must be applied as underlayment on wood surfaces. Two cleats must be placed on the long side and 1 cleat must be placed on the short side. Seams must be locked and soldered.

2. Install copper work in accordance with CDA "Copper in Architecture Handbook".

3. Flat Seam Metal Roof Panels: Fasten system to substrate with concealed metal cleats and screws at spacings required by fabricator to resist code required wind uplift.

4. Align, level, and plumb system with structure.

5. Fasten cleats or nails using cleats mated to folded flat seams and fastener pattern to resist design loads with screws or barbed nails of sufficient length to penetrate substrate.

6. Tin and prepare panels as described in specifications above.

7. Only install the number of panels in a day that can be field soldered before the end of the day's work. Install overnight protection on the unsoldered tinned edges of panel seams to prevent contamination before the start of the next work day.

8. Fully seat adjacent panel to on two sides to achieve continuous engagement of seam joint.

9. Mallet or dress down engaged seams.

10. Apply flux and fully sweat seams with solder to achieve watertight installation.

E. Standing Seam Roofing:

1. Fold lower end of each pan under 3/4 inch. Slit fold one inch away from corner to form tab where pan turns up to make standing seam. Fold upper end of each pan over 2 inches. Hook fold on lower end of upper pan into fold on upper end of underlying pan.

2. Apply pans beginning at eaves. Loose lock pans to valley flashing and edge strips at eaves and gable rakes.

3. Finish standing seams one inch high. Bend up one side edge 1-1/2 inch and other 1-3/4 inch. Make first fold 1/4 inch wide single fold and second fold 1/2 inch wide, providing locked portion of standing seam with 5 plies in thickness. Fold lower ends of seams at eaves over at 45 degree angle. Terminate standing seams at ridge and hips by turning down in tapered fold.

3.4 INSTALLATION – FLASHING

A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations and with the "Copper in Architecture" handbook published by the Copper Development Association (CDA). Anchor units of work securely in place by methods indicated, providing for thermal expansion of units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.

1. Install units plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction.

2. Apply asphalt mastic on copper surfaces of units in contact with dissimilar metals.

3. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

4. Miter, lap seam and close corner joints with solder. Seal seams and joints watertight.

5. Install expansion joints at frequency recommended by CDA. Do not fasten moving seams such that movement is restricted.

6. Coordinate with installation of roofing system and roof accessories.

B. Install flashings at intersections of roof with vertical surfaces and at projections through roof, except that flashing for heating and plumbing, including piping, roof, and floor drains, and for electrical conduit projections through roof or walls is covered in appropriate sections for such work.

C. Flashing and Counter Flashing:

1. Fabricate as indicated on Drawings and in accordance with the CDA "Copper in Architecture" handbook.

2. Hem exposed flashings on underside 1/2 inch; miter and seam corners.

3. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

4. Fabricate flashings to allow toe to extend minimum 2 inches over wall surfaces.

D. Counterflashing and Receivers:

1. Counterflashings shall be provided over base flashings. Fabricate counterflashings and receivers as 2 piece assemblies to permit installation of counterflashing after base flashings are in place.

2. Fabricate receivers of same metal and thickness as counterflashings.

3. Counterflashings must be turned around exterior corners of masonry or concrete walls at least 2 inches, must be secured into masonry joints and into concrete. Corner units must have mitered joints, must be installed with 3 inch lap joint over flashings on each side.

4. Extend the flashing a minimum of 3/4 inch into the cleaned masonry joint and secure with lead wedges 8 inches o.c. Point the joint with mortar as specified for masonry work.

5. Overlap roof base flashing 4 inches minimum.

6. Install bottom edge tight against base flashing by locking to continous lock strip soldered to base flashing.

7. Lap seam vertical joints 3 inches minimum and apply sealant.

8. Exposed and unfastened flashings must have the edge of the strip turned under 1/2 inch.

E. Base Flashings:

1. Form the base flashing with locked and soldered joints into lengths not more than 24 feet o.c.

2. Provide expansion joints a maximum of 24 feet O.C. on straight runs and a maximum of 4 feet from corners. Form expansion joints with a 3-inch loose locked seam filled with sealant.

3. Expansion Joint: Slit the cross-folded portion of the flashing where it is bent at a right angle. Solder a patch over the slit to avoid binding at the cross fold.

4. Extend the vertical portion of the base flashing as shown on the Drawing and a minimum of 4 inches up behind the counterflashing or wood siding and trim.

5. Where shown on the drawings lock the base flashing to the cap flashing with a minimum 3/4 inch loose lock joint.

6. Extend the horizontal portion of the base flashing onto the roof surface a minimum of 4 inches and terminate in a 1/2 inch folded edge. Secure with nails spaced 3 inches O.C., staggered.

F. Fascia/Gravel Stop: As indicated on Drawings and in accordance with the CDA "Copper in Architecture" handbook.

G. Valley Flashing:

1. Fabricate valley flashing according to details and specified requirements.

2. Fabricate metal flashings at open valleys with a minimum 1 inch high standing rib at center of valley to break force of water flow.

3. Extend metal flashing a minimum of 12 inches onto roof deck on each side of valley.

4. If valley length exceeds 12 feet, increase width of valley flashing by 1 inch on each side per 96 inches of valley length.

3.5 INSTALLATION – GUTTERS

A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations and with the "Copper in Architecture" handbook published by the Copper Development Association (CDA). Anchor units of work securely in place by methods indicated, providing for thermal expansion of units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.

1. Install units plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction; except install gutters with required slope.

2. Apply asphalt mastic on copper surfaces of units in contact with cementitious materials and dissimilar metals.

3. Fit gutters to downspouts and flashings for watertight connections. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

4. Miter, lap seam and close corner joints with solder. Seal seams and joints watertight with solder

5. Install expansion joints at frequency recommended by the CDA "Copper in Architecture" handbook. Do not fasten moving seams such that movement is restricted.

6. Coordinate with installation of roofing system and roof accessories.

B. Fabricate gutters, downspouts, and fittings to the shape and profile indicated on the Drawings. When fabrication details are not indicated follow the applicable requirements of the Architectural Sheet Metal Manual of the Sheet Metal And Air Conditioning Contractors National Association, Inc.

1. Form gutters and downspouts in minimum 10 foot long sections.

C. Joining: Solder all copper connections with one inch wide lapped, riveted, and soldered seams. Use 3/16 inch diameter rivets spaced 2 inches o.c.

D. Gutters and, Downspouts:

1. Flash and seal gutter to downspout.

2. Slope gutters as indicated on the Drawings, but not less than 1/4 inch per 10 feet.

3. Provide expansion joints at 48'-0" maximum and not more than 24 feet from corners.

4. Hang gutter with copper straps spaced 24 inches centers maximum. Closer spacing may be required to handle system loads.

5. Integrate gutter flashing conditions with requirements of adjacent roofing for watertight installation.

E. Install continuous gutter guards on gutters, arranged as hinged units to swing open for cleaning gutters. Install wire ball-type strainer at downspouts in open "Yankee" gutters; removable for cleaning downspouts.

F. Install counterflashing as indicated to prevent water from migrating behind gutter system.

G. Installation of Downspouts:

1. Join the downspout sections with end joints that telescope at least 1-1/2 inches.

2. Install necessary offsets and elbows.

3. Secure downspout with hangers at top and bottom and 5'x 0" o.c. with a minimum of 2 hangers at each downspout section. Form hangers to keep downspouts 1 inch away from wall.

4. Fasten downspouts to hangers with sheet metal screws.

5. Secure hangers to masonry and concrete walls with machine bolts in lead shields and to wood walls with screws.

6. Discharge Elbows: Fasten leader shoes to downspouts with a minimum of 3 sheet metal screws.

7. Connection to Underground Drains: Fit the downspout neatly into the drain pipe or boot. Caulk the joint with lead wool and seal with sealant.

3.6 CLEANING

A. Remove protective film (if any) from exposed surfaces of copper roofing promptly upon installation. Strip with care to avoid damage to finishes.

B. Clean exposed copper surfaces, removing substances that might cause abnormal discoloration of metal.

C. Upon completion of each area of soldering, carefully remove flux and other residue from surfaces. Neutralize acid flux by washing with baking soda solution, and then flushing clear water rinse. Use special care to neutralize and clean crevices.

D. Clean exposed metal surfaces of substances that would interfere with uniform oxidation and weathering.

END OF SECTION

SECTION 07 90 00

JOINT SEALERS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 DESCRIPTION OF WORK

A. The Work of this Section includes all labor, materials, equipment, and services necessary for providing sealants as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

1. Joints between dissimilar materials, including metal-to-masonry joints.

2. Wood-to-wood joints.

3. Sealant joints for sheet metal.

4. Other joints forming waterproof terminations and connections as needed.

1.3 RELATED SECTIONS

A. Rough & Finish Carpentry – Section 06 10 00.

B. Asphalt Shingle Roofing – Section 07 31 13.

C. Wood Siding & Trim – Section 07 46 00.

D. Sheet Metal Flashing & Roofing – Section 07 61 00.

E. Wood Doors and Hardware – Section 08 14 00

F. Wood Windows – Section 08 52 00.

1.4 QUALITY ASSURANCE

A. Establish and maintain air-tight, waterproof and permanent seals of a continuous nature, within recognized limitations of wear and aging.

B. Workers installing sealants shall have minimum 5 years experience in installing sealants for the types of work required.

C. Container labels: Include manufacturer’s name, product trade name, kind of material, federal specification number (if applicable) expiration date and packaging date or batch number.

1.5 SUBMITTALS

A. Submit manufacturer's product specifications, installation and curing instructions, and test data for each product used.

B. Submit sample card of manufacturer's standard color selection for joint sealants exposed to view, for color selection by the Architect.

1.6 JOB CONDITIONS

A. Install sealants only under weather conditions recommended by the manufacturer. Do not use products which have frozen or have been exposed to freezing temperatures for prolonged periods of time.

B. Protection:

1. Protect all finished surfaces adjacent to sealants with non staining removable tape or other approved covering to prevent soiling or staining.

2. Protect all other surfaces in the Work area with tarps, plastic sheets or other approved coverings to prevent defacement from droppings.

1.7 WARRANTY

A. Provide manufacturer's standard warranty on sealant materials, minimum of 10 years.

B. Contractor shall provide two (2) year guarantee for replacement of sealants that fail to perform as intended due to workmanship, improper installation or installation under improper conditions, damage due to contractor's operations, failure to provide necessary protection or curing procedure following installation, and/or installation of incorrect or inappropriate sealant for the material or location. Guarantee shall cover the complete cost of labor, materials and equipment to replace sealant. Failure for purposes of the guarantee shall include cracking, bonding failure with substrate, release of sealant from the joint, staining of adjacent materials, and discoloration of sealant as a result of contractor's operations or errors.

PART 2 PRODUCTS

2.1 SEALANTS

A. Provide colors to be selected by the Architect from manufacturer's standard colors.

B. Sealant for metal to masonry joints, and sealant for door thresholds:

1. One-component, pre-pigmented, non-staining, moisture-curing polyurethane sealant, MasterSeal NP1 (formerly Sonolastic NP1), as manufactured by BASF, or approved equal.

2. Compliance: Sealant shall meet or exceed requirements of ASTM C920, Type S, Grade NS, Class 35, Use NT, M, A, T, O and I.

C. Sealant for sheet metal joints: One part neutral cure, non-sag RTV silicone for weather sealing of metal and structural glazing, Dow Corning 795, or approved equal.

1. Type and Grade: S and NS

2. Class: 50

3. Uses: NT, G, A and O

D. Sealant for wood to metal joints:

1. Single component, silicone sealant, Dow Corning 795, or approved equal

2. Complying with: Type S, Grade NS, Class 25

E. Sealant for wood to wood joints (non paintable sealant):

1. Single component, silicone sealant, Dow Corning 795, or approved equal

2. Complying with: Type S, Grade NS, Class 25

F. Sealant for wood to wood joints (paintable sealant):

1. Single component, polyurathane-based, paintable sealant, Sikaflex-1a by Sika, or approved equal

2. Complying with: Type II, Clase A, meets ASTM C920, Type S, Grade NS, Class 35, Use T, NT, O, M, G, I, A

2.2 MISCELLANEOUS MATERIALS

A. Joint Primer/Sealer/Conditioner: As recommended by the sealant manufacturer for the particular joint surface materials and conditions.

B. Backer Rod: Compressible closed-cell polyethylene rod stock

C. Bond Breaker Tape: Polyethylene or other plastic tape as recommended by the sealant manufacturer; non bonding to sealant; self adhesive where applicable.

D. Cleaning Solvents: Oil free solvents as recommended by the sealant manufacturer. Do not use re claimed solvents.

E. Masking Tape: Removable paper or fiber tape, self adhesive, non staining.

PART 3 EXECUTION

3.1 PREPARATION

A. Examine substrate and notify Architect of any conditions unsatisfactory for a weather-tight seal. Proceed with sealant work only when substrate conditions are satisfactory.

B. Joint preparation:

1. Porous masonry surfaces: Remove mortar to depth indicated on the drawings or if not indicated to depth required to insert flashing. Clean joint surface after existing mortar and sealants have been removed and immediately before installing sealants, removing dirt, moisture and other substances or coatings which would interfere with bond of sealant. Use compressed air to finish cleaning.

2. Nonporous surfaces: Use two-cloth solvent wipe in accordance with ASTM C1193.

C. Priming Joint Surfaces:

1. Prime joints if so recommended by manufacturer's instructions. Avoid priming masonry surfaces.

2. Do not allow primer/sealer to spill or migrate onto adjoining surfaces.

D. Provide backer rod at joints as indicated in the drawings and as recommended by the sealant manufacturer.

E. Adhesion test: Apply sealant to small area and perform adhesion test in accordance with ASTM C1193, Method A, to determine if primer is required to achieve adequate adhesion. If necessary, apply primer at rate and in accordance with manufacturer’s instructions.

3.2 SEALANT INSTALLATION

A. Install sealants where indicated on the drawings and at the following locations whether indicated or not:

1. Exterior wood to wood joints wider than the thickness of a paper clip, as, for example, between wood members such as posts and brackets and between pieces meeting pieces of wood trim, fascia boards and the like.

2. Lap joints in metal couterflashings, aprons, valleys, and thru wall flashings.

3. Lap joints in asphalt shingle roofing at ridge caps and hip caps.

4. At penetrations of fasteners through sheet metal

B. Install sealants prior to finish painting of wood.

C. Strictly comply with manufacturer's instructions for installation of sealants.

D. Sealant backing: Install without gaps, twisting, stretching, or puncturing backing material. Use gage to ensure uniform depth to achieve correct profile, coverage, and performance.

1. Install backer rod of sufficient size to fill the joint width at all points in a compressed state. Compress backer rod at the widest part of the joint by a minimum of 25 percent. Do not cut or puncture the surface skin of the rod.

2. Bond breaker: Install on backside of joint where backing is not feasible and where indicated or specified. Install bond breaker tape in relaxed condition as it comes off the roll. Do not stretch the tape. Lap individual lengths.

E. Sealant: Deposit sealants in uniform, continuous ribbons, without gaps or air pockets. Seal joints adjacent to painted work before final coat of paint is applied.

1. Use sealant-dispensing equipment to push sealant bead into opening. Fill joint opening to full and proper configuration. Apply in continuous operation.

2. Complete horizontal joints prior to vertical joints. Lap vertical sealant over horizontal joints.

F. Finishing: Before skinning or curing begins, tool sealant with metal spatula. Provide concave, smooth, uniform, sealant finish. Eliminate air pockets and ensure complete contact on both sides of joint opening. Tool joints in one continuous stroke.

1. Use tool wetting agents as recommenced by the sealant manufacturer.

G. Install sealant to depths recommended by manufacturer, but within the following general limitations; for elastomeric sealants fill joints to 50% of joint depth, for non-elastomeric sealants and caulking compounds, fill joints to 75% - 125 % of joint width.

3.3 CLEANING AND PROTECTION

A. Immediately remove misapplied sealant and droppings from metal surfaces with solvents and wiping cloths. On other materials, remove misapplied sealant and droppings by methods and materials recommended in writing by the manufacturer of the sealant material.

B. After sealants are applied and before skin begins to form on sealant, remove all masking and other protection and clean up any remaining defacement caused by the Work.

C. Comply with manufacturer's recommendations for curing and protection of sealants to obtain optimum performance

END OF SECTION

SECTION 08 14 00

WOOD DOORS AND FINISH HARDWARE

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the exterior wood doors as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

1. Exterior Wood Panel Doors

2. Repair existing wood doors

3. Finish Hardware for Exterior Doors

1.2 RELATED SECTIONS

A. Rough Carpentry and Finish Carpentry -Section 06 10 00

B. Wood Siding and Trim- Section 07 46 00

C. Painting and Coating - Section 099000

1.3 SUBMITTALS

A. Doors:

1. Product Data: Submit manufacturer's product data for each type of stile-and-rail wood door including elevations and details of construction.

2. Shop Drawings: Submit shop drawings of wood doors including door type, door design number, door size, hardware types and locations, hardware blocking requirements and location, panel layout, molding and sticking profile, vision panel, lite opening sizes and locations, and finishing.

a. Include a list of field-verified rough openings for all new and replacement doors

b. Show on the shop drawings details for each door configuration, including frames, trim and anchoring

3. Verification Samples: Submit two corner samples, minimum 6 inches by 6 inches representing actual products and materials specified indicating visual characteristics and finish. Include range of samples if variation of appearance is anticipated.

B. Finish Hardware: Submit final door hardware list to include:

1. Manufacturer's name and catalog number.

2. Material and finish

3. Door number and location

4. Cuts of each item submitted.

5. Explanation of all abbreviations, codes, symbols, etc.

6. Mounting locations of hardware.

1.4 QUALITY ASSURANCE

A. Wood Doors: Provide doors from a company specializing in manufacturing doors with a minimum of five years documented experience. All wood doors shall be supplied from a single manufacturer.

1. Sustainable Construction: Paneled door construction shall limit use of formaldehyde products during fabrication.

B. Finish Hardware: Comply with the current recommendations, guidelines and other information published by the Builders Hardware Manufacturers Association (BHMA) and the Door and Hardware Institute in their standards. Hardware shall be manufactured for use in the United States and provided by US-based sources

1. Provide all finish hardware for doors necessary for complete job except such items as are excluded herein, with proper type screws and accessories for attachment of each item. It is not intended that this specification mention each particular item but that it gives information for determining kind, quality, and finish required.

2. The finish hardware schedule may not be complete as to listing all openings, hand and backset, and all items required. The Contractor is required hereby to check the drawings and coordinate number of openings, door swings, and functions with schedule.

3. Contractor shall receive and be responsible for safe storage of hardware. Any hardware lost or damaged shall be replaced by Contractor.

4. All hardware shall be of uniform color and reasonably free from imperfections affecting the appearance and serviceability. It shall be suitable and adapted for its required use and respective locations.

5. Should any hardware, as specified, fail to meet the intended requirements or require modifications to suit the intended location, advanced information shall be brought to the attention of the Architect for correction or advice in ample time to avoid delay in the manufacture and delivery of hardware, in order to have it ready for use when needed.

C. Project Conditions:

1. Field verify existing openings.

2. Do not install products under environmental conditions outside manufacturer’s recommended limits.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions, recommendations and industry standards.

B. Store materials in manufacturer's original labeled packaging until ready for installation and in accordance with manufacturer's instructions. Protect from damage. This contractor shall be responsible for safe storage, undamaged condition and completeness of door units and finish hardware at time of installation and date of acceptance of the project.

C. Coordinate hardware with other work. Deliver individually packaged hardware items accurately labeled as to its location in the work as listed in the approved Hardware List. Deliver hardware at the proper times to the proper locations for installation.

1. Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check the shop drawings of such other work, to confirm that adequate provisions are made for the proper installation of hardware.

1.6 WARRANTY

A. Door Manufacturer's Warranty: Provide manufacturer's standard limited warranty that each panel door bearing the manufacturer's brand and identification mark complies with Industry Standard WDMA I.S.6A and all revisions in effect as of the date of manufacture, and that each such door, at the time of the shipment, is of good material and workmanship and free from defects that would render such door unserviceable or unfit for the ordinary, recommended use.

1. Warranty Period for exterior doors: Nantucket- Collection™ doors (Douglas Fir, Western Hemlock, Sapele Mahogany, or Nootka Cypress) – 10 years.

2. Warranty Period for door panels: Innerbond® door panels – Lifetime.

3. Warranty Period for door glazing: Insulated Glass – 5 years.

B. Hardware Warranty: All new hardware shall be guaranteed by the manufacturer for 3 years.

PART 2 PRODUCTS

2.1 DOOR MATERIALS AND MANUFACTURERS

A. Acceptable Manufacturers: Basis of design is exterior doors by Simpson Door Company, McCleary, WA (www.simpsondoor.com) that have a 10-year warranty, and conform with the design configuration and profiles as indicated on the drawings. Products of other manufacturers that comply with the specified product and design in materials, construction, configuration, profile, and warranty are acceptable.

B. Exterior Doors: Nantucket Collection™ as manufactured by Simpson Door Company. Provide half-glazed panel doors conforming to design and details as shown on the drawings.

1. Construction:

a. Mortise-and-tenon joinery for rails and stiles

b. Two-piece laminated solid wood stile-and-rail construction; solid wood blanks cross-grain laminated

c. Water and warp-resistant bottom rail construction

d. Panel construction: 1-7/16" "Innerbond" Double Hip-Raised Panel; cross-grain laminated wood blanks

2. Thickness: 1-3/4"

3. Stiles: 5-1/2" wide

4. Wood Species: Douglas Fir, Western Hemlock, Sapele Mahogany, or Nootka Cypress

5. Glass: 3/4" Insulated Glazing with simulated divided lites (SDL)

6. Mouldings: Ovolo

7. Finish: Factory primed for field painting

2.2 FINISH HARDWARE MATERIALS AND MANUFACTURERS

A. Furnish and install all finish hardware specified in the Hardware Schedule at the end of this section and as required for complete installation for doors. Required types of hardware include, but are not necessarily limited to:

1. Butts and hinges.

2. Lock cylinders and keys.

3. Lock and latch sets.
4. Closers
5. Bolts
6. Metal Thresholds
7. Weatherstripping

B. If specific manufacturer not listed in the Hardware schedule, provide builders hardware as produced by the following, or by Architect approved manufacturers providing hardware equal products in operation, construction and appearance:

1. Manufacturers of butts and hinges
   a. Stanley.
   b. Hager.
   c. McKinney.
2. Manufacturers of locks and latch sets:
   a. Sargent
   b. Corbin Russwin.
   c. Adams Rite
3. Manufacturers of thresholds, stripping and seals
   a. Pemko.
   b. Reese.
   c. National Guard.
4. Manufacturers of flush bolts, push plates, kick plates
   a. Ives
   b. Baldwin
   c. Rockwood
5. Manufacturers of closers
   a. LCN
   b. Corbin Russwin
   c. Sargent

C. All locks shall be complete units manufactured by a single manufacturer as specified herein.

D. Base Metals: Produce hardware units of the basic metal and forming method indicated, but in no case of lesser quality than specified by FS H-106C/GEN and FS FF-H-1066. Do not substitute "optional" materials or forming methods for those indicated, except as otherwise specified.

1. Hinges: stainless steel or bronze, polished and plated.

2. Metal Thresholds: Extruded tempered aluminum 6063-T6

E. Fasteners: Manufacture hardware to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self- tapping sheet metal screws, except as specifically indicated.

F. Furnish screws for installation, with each hardware item. Provide temper resistant flat-head screws except as noted otherwise. Finish exposed (exposed under any condition) screws to match the hardware finish.

G. Provide concealed fasteners for hardware units that are exposed when the door is closed, except to the extent no standard-manufactured units of the type specified are available with concealed fasteners. Do not use through bolts for installation where bolt head or the nut on the opposite face is exposed in any other work under any condition, except where it is not possible to adequately reinforce the work and use machine screws or concealed fasteners of another standard type, to satisfactorily avoid the use of through bolts.

H. Finish: All finishes to be Polished Brass, US3, unless otherwise noted

I. On accessible doors, hardware items and hardware operation to comply with ADA and ANSI A117/A156.19 requirements for accessibility, including, but not necessarily limited to, grasping requirements, maximum threshold height, mounting heights, and maximum force or speed of operation of closers and door openers.

J. Provide thresholds at sills and continuous weatherstripping at jambs and head for all exterior doors. Thresholds to be sized for full width of door opening and wall thickness, bronze anodized finish or mill finish extruded bronze. Weatherstripping to be spring bronze type.

K. Keying: provide master keying system for mortised locksets, complying with Campus standards and requirements

1. Furnish 5 keys for each lock.

2. Key all exterior doors alike, unless directed otherwise by the Campus

3. Provide 5 master keys to Owner.

L. Tools for maintenance: Furnish a complete set of specialized tools as needed for the Owner's continued adjustment, maintenance and removal and replacement of hardware.

PART 3 EXECUTION

3.1 DOOR INSTALLATION

A. Examine and prepare door openings and substrates for new/replacement doors. Installation of doors indicates the contractor's acceptance that openings, frames and/or substrate conditions are ready to receive doors and hardware.

B. Install in accordance with manufacturer’s instructions, plumb, level, and in proper relationship with adjacent construction. Operate doors and adjust installation to provide proper operation of opening.

3.2 HARDWARE INSTALLATION

A. Conduct coordination conferences for keying, preinstallation, pre-acceptance, post-occupancy adjustments, and other coordination interface required to facilitate the Campus’ acceptance of the installed hardware.

B. Coordinate with local fire department as required to determine the fire department’s requirements for location of keys for their use, to be accessible in an exterior fire department box (Knox box).

C. Provide hardware templates to door manufacturers for proper fabrication and preparation of doors to receive hardware.

D. Provide complete installation including necessary cutting, mortising, patching, and drilling of any work as required, and in accordance with manufacturer's directions and templates. Check hardware list before installation for proper allocation of items.

E. Set units level, plumb and true to line and location.

F. Where field finishing of doors is required, hardware shall be removed and then reinstalled, after finishes have been completed.

1. Remove, clean, repair & treat existing hardware as specified and reinstall after finishes completed.

G. Keying: All doors shall be fitted with locks that are convertible to the existing Campus Keying System.

1. Provide temporary construction cores replaceable by permanent cores. During construction, temporary cylinders shall be operated by a master key system that meets the security requirements during construction. Immediately prior to occupancy, the cylinders shall be converted to the permanent building key system by the Campus.

2. Cylinders shall match the campus standard 7-pin type.

3. Each key shall be tagged and identified in regard to the door it serves, and stamped with identification code or number.

4. At completion of construction deliver all tagged keys directly to the Campus locksmith by registered mail with return receipt requested, unless otherwise directed by the Owner's Representative

3.3 REPAIR OF EXISTING DOORS

A. Inspect existing doors being retained for extent of any repairs beyond those specified herein and report to the Architect prior to proceeding with such work.

B. Execute the following repairs:

1. Replace broken, decayed or missing trim members to match existing

2. Repair loose or open joints between rail and stile members

3. Refasten loose but sound trim members

4. Repair checks, splits and/or small holes in the wood with suitable wood putty

5. Provide solid wood infill plugs for door and frame cutouts that are not or will not be used by the scheduled hardware

C. Scrape and prepare existing doors for painting as specified in Section 09 90 00

3.4 PROTECTION AND ADJUSTMENT

A. Rehang doors or replace new doors which do not swing or operate freely as directed by the Architect. Clean doors just prior to acceptance of the work. Remove any protective films from hardware, clean and adjust as required for smooth operation.

1. Touch-up, repair or replace damaged products before Substantial Completion.

B. Advise Contractor of proper procedures required for protection of installed wood doors and hardware from damage and deterioration until acceptance of the project.

C. Protect hardware from damage, including finish damage, during construction period. Replace any damaged hardware.

D. Adjust hardware for smooth and proper operation prior to final inspection. Replace units that can't be adjusted to operate freely and smoothly as intended for the application made.

E. Final Adjustment: Wherever hardware installation is made more than one month prior to substantial completion of the work, return during the week prior to acceptance or occupancy and make a final check and adjustment of all hardware items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for operation building of heating and ventilation equipment.

F. Instruct Owner's personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

3.5 HARDWARE SCHEDULE

A. Set #1- Basement Entrance Door (Door 01)
1 1/2 pr Butts, Stanley FBB199 4 ½ x 4 ½, US3
1 Lockset, Corbin Russwin, ML2075. Trim Design: Museo 109, US3
1 Closer, LCN 4110, parallel arm, US3
1 Threshold, low-profile saddle with stop & neoprene seal, Pemko type 179 T or equivalent, nom. 1/2" - 3/4" height

B. Set #2 - French Doors (Doors 05, 06, 07, 08, 09)
Hinges by door manufacturer
1 Lockset, Corbin Russwin ML2082. Trim Design: Museo 109, US3
1 Pr. Dummy Trim, Museo 109, US3
1 Pr. Automatic Flush Bolts, Ives FB41P, US3
Threshold by door manufacturer

C. Set #3 - Exit Doors (Doors 10, 12, 13, 14)
1 1/2 pr Butts, Stanley FBB199 4 ½ x 4 ½, US3
1 Lockset, Corbin Russwin, ML2082. Trim Design: Museo 109, US3
1 Closer, LCN 4110, parallel arm, US3
Threshold, low-profile saddle with stop & neoprene seal, Pemko type 179 T or equivalent, nom. 1/2" - 3/4" height

D. Set #4 - Entrance Door (Door 11, in-swing)
1/2 pr Butts, Stanley FBB199 4 ½ x 4 ½, middle, US3
1 Lockset, Corbin Russwin, ML2075. Trim Design: Museo 109, US3
1 Closer, LCN 4110, parallel arm, pull side, US3
1 Threshold, heavy duty saddle type, Pemko 1715 or equivalent
1 Door bottom, recessed, Pemko 313N, mill finish extruded bronze
Kick Plates, Ives 8400, 8"h x door width less 2", US 3
Existing Sets - Entrance Doors (Doors 02, 03, 04)
Clean and adjust existing hardware. Replace any missing or loose fasteners to match existing

END OF SECTION

SECTION 08 52 00

WOOD WINDOWS AND GLAZED DOORS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. Extent of the work is shown in the drawings and specified herein and includes:

1. Remove existing window units as indicated on the drawings

2. Furnish and install new wood window units and glazed French doors

1.2 RELATED SECTIONS

A. Removals, Cutting and Patching - Section 02 41 20

B. Rough and Finish Carpentry - Section 06 10 00

C. Wood Siding and Trim - Section 07 46 00

D. Finish Hardware - Section 08 14 00

E. Painting - Section 09 90 00

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM C 1036 - Flat Glass.

2. ASTM D 1149 - Rubber Deterioration – Surface Ozone Cracking in a Chamber.

3. ASTM D 2803 - Filiform Corrosion Resistance of Organic Coatings on Metal.

4. ASTM D 4060 - Abrasion Resistance of Organic Coatings

5. ASTM E 283 - Rate of Air Leakage Through Exterior Windows and Doors

6. ASTM E 330 - Structural Performance of Exterior Windows and Doors

7. ASTM E 547 - Water Penetration of Exterior Windows and Doors

B. Window and Door Manufacturers Association (WDMA):

1. AAMA/WDMA/CSA 101/I.S.2/A440 – North American Fenestration Standard/Specification for windows, doors and skylights

2. WDMA I.S.4 - Industry Specification for Preservative Treatment for Millwork.

1.4 SUBMITTALS

A. Shop Drawings: For each type of window and glazed door, and each typical installation condition. Include information not fully detailed in manufacturer's Product Data and the following:

1. Layout and installation details for each typical installation, including anchors

2. Typical unit elevations at 3/4"= 1'0", including mulled transoms and sidelights

3. Full -size section details of typical components members, including frame, sash, muntins, reinforcement and stiffeners, and relationship to adjacent construction

4. Glazing details

5. Accessories

6. Window and glazed door schedule indicating field verified rough openings and unit sizes for all units, utilizing same numbering system as the schedules in the drawings

B. Product Data: For each type of wood window and glazed door include the following

1. Construction details and fabrication methods

2. Profiles and dimensions of individual components

3. Product data and cut sheets on hardware, accessories and finishes

4. Testing data for performance requirements

5. Recommendations for maintenance and cleaning

C. Samples:

1. One 12" long corner section each of double-hung window unit and glazed door.

2. Samples for verification: Architect reserves the right to require additional samples that show fabrication, workmanship, and design of hardware and accessories.

3. Three (3) factory paint samples on wood, min. 10 sq. inches each, in initial color selection for window and glazed door exteriors for matching to window/door paint color specified in Section 09 90 00

D. Quality Control Submittals:

1. Test Reports: Certified testing laboratory reports, indicating that window units have been tested and comply with grade requirements specified.

2. Manufacturer's Certification: Window manufacturer's certification that all windows meet specified performance standards.

E. Mockup: Following review of Shop Drawings, Product Data and Samples, mockup one complete window installation (Type E), including exterior and interior trim for approval by the Architect and the Owner's representative as minimum standards for wood window replacement. Approved mockup will remain as part of the work. Remove and replace mockup that does not comply with specified and detailed requirements.

1.5 PERFORMANCE REQUIREMENTS

A. Windows shall be rated in accordance with ANSI/AAMA/WDMA 101/I.S.2/A440-08 or ANSI/AAMA/WDMA 101/I.S.2/A440-11.

B. Performance requirements: Testing shall be performed by a qualified independent testing agency and demonstrate the following performance.

1. Window Unit Air Leakage, ASTM E 283, 1.57 psf (25 mph): 0.3 cfm per square foot of frame or less.

2. Window Unit Water Penetration: No water penetration through window unit when tested in accordance with ASTM E 547, under static pressure of [4.5 psf (42 mph)] [7.5 psf (52 mph)]

after 4 cycles of 5 minutes each, with water being applied at a rate of 5 gallons per hour per square foot.

3. Window Structural Test Pressure: No failure or permanent deflection in excess of 0.4 percent of any member's span after removing the imposed load, for a positive (inward) and negative (outward) test pressure of 40psf minimum.

4. Thermal Transmittance, all glazing: Center of glass maximum winter U-value of 0.50.

C. Glazing Standards: Comply with recommendations of GANA's Glazing Manual and Sealant Manual. Glass shall be Quality 1, clear float glass complying with ASTM C1036.

1.6 JOB CONDITIONS

A. Verify window and door openings by field measurements before fabrication and indicate measurements on Shop Drawings. All replacement windows shall fit existing openings fully and precisely without fillers. Coordinate fabrication schedule with construction schedule to avoid delaying the work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site undamaged in manufacturer's or sales branch's original, unopened containers and packaging, with labels clearly identifying manufacturer and product name. Include installation instructions.

B. Storage: Store materials in an upright position, off ground, under cover, and protected from weather, direct sunlight, and construction activities.

C. Handling: Protect materials and finish during handling and installation to prevent damage.

1.8 WARRANTY

A. The special warranty specified herein shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Special Warranty: Manufacturer’s standard form in which manufacturer agrees to repair or replace window and glazed door units that fail in material or workmanship within the warranty period from date of substantial completion as follows:

1. Warranty period for insulating glass: Twenty (20) years

2. Warranty period for wood window/door unit and non-glass components: Ten (10) years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of design is Reserve Traditional Wood Windows & Hinged Patio Doors by Pella Corporation, Pella, Iowa (www.pella.com). Acceptable other manufacturers of products that might meet all requirements of the specifications in design, materials, performance and warranties: Marvin, Warroad, MN (www.marvin.com); Loewen Windows, Steinbach, Manitoba, CA (www.loewen.com); Norwood, Westwood Industries Ltd., Scoudouc, New Brunswick, CA (norwoodwindows.ca)

2.2 WINDOW UNITS

A. Window types: New double-hung, casement, and fixed wood window units, with factory-applied exterior paint.

1. Sizes: as indicated on the drawings and field verified to fit existing openings, without alteration to the openings or added blocking. Sizes may be non-standard.

2. Configuration: sash, mullion and muntin configurations as shown on the drawings

3. Profile: manufacturer's standard sash and frame profile

B. Window units: Reserve Traditional Wood Windows by Pella Corporation complying with the following:

1. Frame and sash, all wood components: Pine, water-repellent, preservative-treated in accordance with WDMA I.S.-4.5. Corners mortised and tenoned, glued and secured with metal fasteners or coped, doweled and glued.

   a. Exposed interior surfaces for windows scheduled to receive stain: Mahogany

   b. Extension jambs as shown on the drawings

2. Glazing: silicone-glazed 5/8" insulated glass, Low-E coated and Argon filled

3. Sash: nominal 1 3/4" (41mm-46mm) thickness, glass configurations as shown on the drawings

4. Integral muntins (simulated divided lites): metal non-glare spacer between the two panes of glazing to align with factory-adhered exterior and interior wood grilles.

   a. Exterior grilles in Putty profile, interior grilles with Ogee profile, width to be selected by the Architect

5. Operable sash tilt to interior for double-hung units

6. Fasteners:

   a. Zinc-coated or non-ferrous nails and screws for installation of wood window units

   b. Brass screws for installation of hardware and accessory items

7. Perimeter flashing/ water-resistant barrier: manufacturer's recommended butyl sealing tape

8. Sealants for installation: manufacturer's recommended and provided sealant materials

C. Finishes:

1. Exterior:

   a. Factory-applied, warranted coating system consisting of a minimum 3-coat application including wood preservative treatment, primer, and 2 finish coats of 100% acrylic paint as specified in Section 09 90 00, or window manufacturer's standard equal or better factory finish system.

   b. Finish color: One color, as specified in Section 09 90 00

2. Interior:

   a. Interior: Factory-primed finish for windows scheduled for paint finish (P-primed) ; unfinished for windows scheduled for stain (U-unfinished)

   b. Providing interior finish coats or stain is not included in this contract

D. Operating and finish hardware

1. Double-hung balances: Manufacturer's standard galvanized block and tackle, system sized for smooth operation of operable sash

2. Double-hung sash locks: Classic Collection (spoon) style lock, one per window, bright brass finish

3. Tilting mechanism: hidden tilt latch

4. Casement operator: Classic Collection fold-away crank, bright brass

5. Weatherstripping: Manufacturer's standard full perimeter compression weatherstripping

E. Insect screens: provide full insect screens for all operable windows.

1. Screen Cloth: Vinyl-coated fiberglass, 21/17 mesh, with minimum 78 percent light transmissivity.

2. Set in aluminum frame fitted to inside of window.

3. Frame Finish: Baked enamel, color to be selected by the Architect from manufacturer's standard or optional colors

2.3 GLAZED DOORS

A. Glazed doors shall comply with ADA guidelines for accessibility

B. Door units: Reserve Commercial Out-swing French Door, by Pella Corporation in custom width and complying with the following:

1. Frame and door, all wood components: Select woods, water-repellent, preservative-treated in accordance with WDMA I.S.-4.5. Corners mortised and tenoned, glued and secured with metal fasteners or coped, doweled and glued.

a. Exposed exterior and interior surfaces species: Mahogany (custom option), edge banded

b. Rails and stiles: 2 1/16" - 2 1/4" thick, 6" nominal stiles and 12" bottom rail, five-ply construction from solid wood blanks

c. Extension jambs as shown on the drawings

2. Sill: solid extruded aluminum 1/2" low-profile sill with Bronze finish

3. Glazing: dual-pane, silicone-glazed or urethane- glazed 13/16" insulated glass, Low-E coated and Argon filled

a. Tempered Glass: ASTM C 1048.

b. Integral muntins (simulated divided lites): metal non-glare spacer between the two panes of glazing to align with factory-adhered exterior and interior wood grilles. Exterior grilles profile: Putty. Interior grilles profile: Ogee, width to be selected by the Architect

4. Fasteners:

a. Zinc-coated or non-ferrous nails and screws for installation of door units

b. Brass screws for installation of hardware and accessory items

5. Sealants for installation: manufacturer's recommended and provided sealant materials

C. Finishes:

1. Exterior:

a. Factory-applied, warranted coating system consisting of a minimum 3-coat application including wood preservative treatment, primer, and 2 finish coats of 100% acrylic paint as specified in Section 09 90 00, or door manufacturer's equal or better factory finish system.

b. Finish color: One color, specified in Section 09 90 00

2. Interior:

a. Factory-primed finish for doors scheduled for paint finish (P-primed); unfinished for doors scheduled for stain (U-unfinished)

b. Providing interior finish coats or stain is not included in this contract

D. Door hardware:

1. Hinges: manufacturer's ball bearing hinges, 4 per leaf, US3 finish

2. Weatherstripping: manufacturer's integral perimeter weatherstripping

3. Locksets and flush bolts specified in Section 08 14 00

2.4 FABRICATION

A. Replacement windows and glazed doors must fit within existing openings without alteration to the existing rough openings or interior finished openings. Custom sizes may be required. Each opening must be field verified prior to fabrication.

1. Doors shall accommodate the following opening tolerances:

a. Vertical Dimensions Between High and Low Points: Plus 1/8 inch, minus 0 inch.

b. Width Dimensions: Plus 1/8 inch, minus 0 inch.

B. Pre-glaze windows and doors at factory prior to delivery. Provide pre-glazed units with removable glazing stops, nailed or snap-on coordinated with the glazing system.

C. Each unit to be delivered complete and assembled, ready for installation with factory-finished frame, sash/door, sill/undersill, installation fins/fasteners, accessories and manufacturer's operating/finish hardware as specified.

1. Prepare doors at the factory to receive field-installed mortise locksets and flush bolts specified in Section 08 14 00. Obtain templates from hardware supplier.

PART 3 EXECUTION

3.1 REMOVALS AND EXAMINATION

A. Remove existing windows and glazed doors complete with frame and integral trim components, except as shown in the drawing details. Existing trim components and window stools indicated for retention may be removed and reinstalled.

B. Examine window and door openings for any conditions that may impede proper installation of new units including inadequate or deteriorated framing or blocking. Notify the Architect of any such hidden conditions. Do not proceed with installation until such conditions have been corrected.

3.2 INSTALLATION

A. Install windows in accordance with the manufacturer's printed installation instructions, and approved shop drawings.

1. Install units to be weather-tight and freely operating

2. Integrate unit installation with exterior water-resistant barrier using flashing/sealant tape

B. Set units plumb, level and true to line (within 1/8" in 4'), without warp or rack of frames or sash. Provide required support and anchor securely in place.

C. Use concealed fasteners, fins, or anchoring system to the greatest extent possible. Countersink any and all exposed fasteners necessary for installation of units and their trim 1/8" below the surface material. Fill countersunk fasteners flush with material surface and finish to match unit finish.

3.3 ADJUSTING AND CLEANING

A. When directed, or just before the Project is turned over to the Owner, remove labels, markings, dirt and other foreign material from finished surfaces and both sides of glass. Wash and polish glass on both sides.

B. Adjust operating sash and hardware to provide a smooth operation with tight, weatherproof closure. Lubricate hardware and moving parts.

C. Remove and replace glass that is broken, chipped, cracked, abraded or damaged in any way during the construction process including from natural causes, accidents and vandalism.

D. Finish touch up: Wipe down painted surfaces to remove any dirt or dust. Touch up scratches, fastener heads or other surface defects in accordance with factory finish warranty's written instructions.

3.4 PROTECTION

A. Protect wood windows and glazed doors during the construction period to ensure units will be without damage or deterioration (other than normal weathering) at time of final acceptance.

END OF SECTION

SECTION 09 02 10

INTERIOR PLASTER PATCHING

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 plaster work for existing ceilings and any walls scheduled to receive plaster as specified herein, including but not limited to, the following:

1. Contractor shall survey all areas where existing plaster is shown to remain or be replicated, in order to verify extent. Scope of work to include plaster patching at all areas, scheduled to receive new paint, plaster skim coat or wall covering.

2. Cutting out and removing existing interior plaster surfaces where needed to repair existing gypsum plaster.

3. Cutting out and removing existing plaster on walls and ceilings as required for installation of new work.

4. Repair and patching cracks, spalls, delaminations, breaks, losses, chips, holes or other defects in gypsum plaster surfaces.

5. Providing plaster accessories and associated Work.

6. Providing new plaster at existing terracotta vaulted ceilings and over existing beams providing the required fire protection.

7. Application of skim coat of plaster over new and existing plaster ceilings and walls to remain.

1.3 QUALITY ASSURANCE

A. Allowable Tolerances: All plaster repairs shall be keyed and feathered to exactly match and continue edges and contours of existing plaster work. Repairs shall be true and flat in connections with adjacent surfaces when checked with an 8 ft. straight edge; do not exceed 1/8 inch variation in 8 ft. for bow, warp, plumb, or level for flat and curved surfaces.

B. Defects

1. Plastering with defects of such character as will mar the appearance of finished Work, or which is otherwise defective, shall be rejected, removed and replaced at the Contractor's expense.

2. All ridges, ledges and visual irregularities shall be rejected, removed and plaster replaced at the Contractor's expense.

3. Any defects or irregularities of plaster restoration work telegraphing through paint shall be cause for rejection of the Work. The Contractor shall remove any subsequent work, remove and replace the defective or irregular plaster restoration work and have the subsequent work replaced by skilled workman in the appropriate trades, to the satisfaction of the Architect, at the Contractor's expense.

1.4 SUBMITTALS

A. Materials List: Before any materials are delivered to the job site, submit a complete list of all the materials proposed to be furnished and installed.

B. Product Data: Submit manufacturer's product data for plaster materials, lath, metal support components, and accessories; including manufacturer's current recommendations as to methods and installation.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer.

B. Store materials inside, under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes. Neatly stack gypsum lath flat to prevent deformation.

C. Handle gypsum lath to prevent damage to edges, ends or surfaces. Protect metal corner beads and trim from being bent or damaged.

1.6 PROJECT CONDITIONS

A. Environmental Requirements, General: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after application of plaster.

B. Ventilation: Ventilate building spaces in compliance with ASTM C 842 and as required to remove water in excess of that required for hydration of plaster. Begin ventilation immediately after plaster is applied and continue until it sets.

C. Protection

1. Restoration of existing plaster shall be done in such manner as not to cause damage to contiguous work.

PART 2 PRODUCTS

2.1 MATERIALS

A. Gypsum Plaster: ASTM C28. Neat plaster for hand application of scratch coat over metal lath, concrete and terra cotta shall contain not less than 0.01 percent by weight of synthetic or vegetable fibers or not less than 0.02 percent by weight of mineral fibers.

B. Bond Compound: A plaster bonding compound having special bonding properties shall be used for application to concrete surfaces that have been sufficiently roughened to provide a mechanical key. The Bond Compound shall be "Plaster Weld" made by Larsen Mfg. Co. or approved equal. It shall be mixed and applied in strict accordance with the Manufacturer's directions.

C. Plaster Crack Patching Compound: Provide "Sheetrock All Purpose Joint Compound Ready Mixed" as manufactured by U.S. Gypsum Co., or approved equal made by DAP; apply per manufacturer's recommendations.

D. Special Finishing Hydrated Lime: ASTM C-206. Lime putty shall be made from special finishing hydrated lime, machine mixed with water to form a putty and allowed to stand for at least 15 minutes before using. Approved measures shall be taken to protect the putty from sun and to prevent excessive evaporation when stored.

E. Sand: ASTM C35. Graduation of natural or manufactured sand for plaster shall be as follows:

U.S. Standard Sieve Size No.	Percentage Retained	
	Max.	Min.
4	0	0
8	10	0
16	40	10
30	65	30
50	100	95
100	100	95

F. Water: Clean, fresh, potable, and free from injurious amounts of oils, acids, alkalis and organic matter injurious to the plaster.

G. Metal Accessories: Grounds and casing corner beads shall be zinc-coated sheet steel, 26 ga. or heavier, with expanded or perforated flanges or clips so shaped and fabricated as to permit complete embedment in the plaster.

2.2 MIXING OF PLASTER

A. Mix and apply plaster in accordance with the directions of the manufacturer.

B. Texture of finishing coat shall match existing plaster.

2.3 FIRE RESISTANT PLASTER ASSEMBLY AT TERRACOTTA VAULTS AND EXPOSED BEAMS

A. UL Design D 403 consisting of 3.4 lbs self-furring diamond mesh metal lath and 1.5” of 100.2 gypsum perlite plaster bearing a UL label.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where plaster work is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected by the Contractor in a manner acceptable to the Architect.

3.2 GENERAL

A. Sequence plaster installation properly with the installation and protection of other work, so that neither will be damaged by the installation of others work.

B. Cut out and replace all unbonded spots. Build in the work in others and do all cutting and patching of plaster in this connection. Where abutting other built-in materials, plaster shall be finished tightly against them and neatly trimmed unless otherwise indicated.

C. Plaster thicknesses indicated shall be considered as a minimum; plaster shall be of such thickness required to plumb and square wall surfaces so that plaster is flush with adjacent surfaces.

D. Replicate, repair and restore flat wall plaster as indicated. Replicate repair and restore or move existing decorative moldings, applied panels, grooving and cast decoration as indicated.

E. Plaster repairs shall be executed edge to edge in long strips or large areas for each separate coat. Where breaks are necessary lap new work over adjoining work.

F. Bring finished surfaces of plaster to true planes and when complete surface shall be clean, free from blisters, pits, discoloration, cracks or other defects. In all cases the plastering throughout is to be delivered clean and perfect in every respect.

3.3 PREPARATION

A. Inspect all surfaces to be plastered before beginning Work and correct all defects which will affect the proper execution of this Work.

B. Carefully remove all soft, broken, loose or flaking plaster back to substrate and to solid adjacent plastering, making clean and sharp edges; cut back the existing plaster at an angle so that the patching will key properly and blend in with the existing surfaces at both sides of the crack. Where necessary, partially remove existing metal lath, leaving enough lath exposed to tie to new lath. Sweep masonry and lath clean and dampen immediately prior to replastering. Replace deteriorated wood lath with new wood lath to match existing. Concrete substrates shall be roughened to receive scratch or brown coats. Keys in clay tile, masonry, and metal lath substrates shall be cleaned of all existing plaster. Masonry substrates shall be prewetted to prevent excessive suction and too rapid drying. Join new work and make flush with contiguous work.

C. Cracks: Hairline cracks, random cracking and checking shall be repaired using plaster crack patching compound specified herein.

D. Bonding compound shall be applied to all plaster, concrete and masonry surfaces for all plaster repairs. Application shall be in strict accordance with manufacturer's written recommendations and first and brown coats shall be applied directly over bonding compound.

E. All preparation shall be done with compatible materials and methods that will not compromise the integrity o the plasters, and will not telegraph through finished surfaces.

3.4 GYPSUM PLASTER ON METAL AND WOOD LATH, TERRA COTTA AND CONCRETE

A. For Metal and Wood Lath Apply in Three (3) Coats: Scratch Coat, brown coat and finish coat.

B. For Concrete Substrates Repair With Bond Plaster: As noted above and in strict accordance with the manufacturer's instructions.

C. For Clay Tile and Masonry: Apply in two (2) coats: Brown coat and finish coat.

D. Scratch Coats: Apply with sufficient material and pressure to form full bond with solid base materials. Scratch the surface to form a bond for the brown coat.

E. Brown Coats: Do not apply brown coat until after the scratch coat has hardened, and not less than 24 hours after application of the scratch coat. All joints in brown coat plaster shall be lap joints. After drying, all shrinkage cracks shall be cut out and filled with scratch coat plaster.

F. Mix scratch and brown coats shall be mixed in the proportions of 100 lbs. gypsum neat plaster to 2-1/2 cu. ft. of sand. Scratch and brown coats of fibered gypsum plaster shall be mixed in the proportions of 100 lbs. fibered gypsum plaster to one cu. ft. of sand.

G. Finish Coats: Gypsum gauging plaster finish. Mix in the proportion of one part calcined gypsum, to 3 parts of lime putty by volume. Apply bonding compound to existing base coat and then apply finish coat over base coat of gypsum plaster. The finish shall be allowed to draw a few minutes and then shall be well troweled with water to a smooth finish, free from blemishes. The thickness of finish coat shall be from 1/16" to 1/8" and total thickness of gypsum plaster shall be as indicated but no less than 5/8".

1. At plaster ceilings to remain, apply bonding agent per manufacturer’s instructions followed by skim coat of finish plaster applied 1/16” to 1/8” thick.

3.5 FINISHING

A. Cut, patch, point-up and repair plaster as necessary to restore shrinkage cracks, dents and imperfections. Repair or replace work to eliminate blisters, buckles, excessive crazing and check cracking, dry-outs, efflorescence, sweat-outs and similar defects, and where bond to the substrate has failed. Patched surfaces in existing plaster surfaces shall be imperceptible.

B. Sand smooth-troweled finishes lightly to remove trowel marks and arrises.

C. Remove temporary protection and enclosure of other work. Remove plaster from other surfaces which are not to be plastered. Repair floors, walls and other surfaces which have been stained, marred or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers and equipment and clean floors of plaster debris.

D. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures plaster work being without damage or deterioration at time of substantial completion.

END OF SECTION

SECTION 09 29 00

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.

7. Factory fabricated tapable mouldings and decorative trim and reveals.

8. Installing rings and frames in drywall surfaces for grilles, registers and lighting fixtures.

9. Bracing and connections.

B. Related sections

1. 099000 Painting & Finishing

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" safing insulation meeting standards of Section 078413 at flutes of metal deck where partitions carry up to bottom of metal deck.

6. Neatly cut wallboard to fit around outlets, switch boxes, framed openings, piping, ducts, and other items which penetrate wallboard; fill gaps with acoustic sealant.

7. Where wallboard is to be applied to curved surfaces, dampen wallboard on back side as required to obtain required curve. Finish surface shall present smooth, even curve without fluting or other imperfections.

8. Screw fasten wallboard with power-driven electric 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 09 90 00

PAINTING AND FINISHING

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 surface preparation, scraping, sanding, priming, painting and finishing of exterior and interior exposed surfaces in accordance with the types of finishes shown on the Schedules in the Drawings and as specified herein. In general surfaces to be finished include:

1. New exterior wood siding and trim.

2. Existing exterior wood.

3. Existing exterior metal stairs, railings, and cast iron drainage boots.

B. The term "paint", as used herein, means all coating systems and materials including primers, emulsions, epoxy, enamels, sealers, stains, fillers and to other applied materials whether used as prime, intermediate or finish coats (including penetrating stains and transparent finishes). The term "finishing" as used herein means all preparation of surfaces to be painted or to remain unpainted including stripping, scraping, blast cleaning, sanding, washing, as well as treatments with consolidant, fungicide or other cleaning or conservation products.

C. Work not included:

1. Unless otherwise indicated, painting is not required on surfaces in concealed or inaccessible areas.

2. Do not paint finished hardware or other items having factory or shop-applied coating or finish.

3. Do not paint any surfaces not scheduled or intended for painted finish, including but not limited to: flashing & sheet metals, masonry, glass, and sealants.

1.3 RELATED SECTIONS

A. Masonry Cleaning and Restoration – Section 04 01 20.

B. Rough and Finish Carpentry – Section 06 10 00.

C. Wood Siding and Trim – Section 07 46 00.

D. Wood Doors and Finish Hardware – Section 08 14 00.

E. Wood Windows and Glazed Doors – Section 08 52 00.

1.4 QUALITY ASSURANCE

A. Provide primers produced by the same manufacturer as finish coats. Use only thinners approved by manufacturer and use only within recommended limits.

B. Volatile Organic Compounds: (VOCs) Regulatory Requirements: Chapter III of Title 6 of the official compilation of Codes, Rules and regulations of the State of New York (Title 6 NYCRR), Part 200 Architectural Surface Coatings.

1. Certificate of Compliance: Submit written certification stating that each coating product complies with the VOC regulatory requirements.

C. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.

D. Paint Coordination

1. Provide prime coats that are compatible with material being painted and compatible with surface preparation. Provide finish coats that are compatible with the prime coats used.Structural Performance: Provide exterior metal louvers

1.5 SUBMITTALS

A. Manufacturer's Data: Submit copies of manufacturer's product data or specifications, including paint label analysis and application instructions for each coating, stripping and consolidation material specified. Include surface flame spread rating and finish fire-rating class. Submit MSDS for each product.

B. Samples: Submit samples for Architect's review of color and texture only. Compliance with all other requirements is the exclusive responsibility of the contractor.

1. Submit two samples each color, 12"x12" on primed wood for siding and exterior trim.

1.6 DELIVERY AND STORAGE

A. Deliver all materials to the job site in original, new and unopened packages and containers bearing manufacturer's name and label.

B. Gasoline or benzene shall not be brought on site.

C. Protect paints from freezing and store all materials in a single place, which is ventilated and kept neat and clean. Remove oily rags and waste from job site daily.

D. Paints may not be stored, mixed or applied in spaces with finished floors or finished roofing without protective tarps or plastic sheets.

1.7 JOB CONDITIONS

A. Protect adjacent unpainted materials from paint spills, drips, or overpainting. Mask adjacent materials if required.

B. Do not apply water base paints when the temperature of surfaces to be painted and the surrounding air temperatures are below 50°F or will fall below 50° within 24 hrs. following painting, unless otherwise permitted by the paint manufacturer's printed instructions.

C. Do not apply solvent-thinned paints when the temperature of surfaces to be painted and the surrounding air temperatures are below 45°F or will fall below 45° within 24 hrs. following painting, unless otherwise permitted by the paint manufacturer's printed instructions.

D. Do not apply any paint when the relative humidity exceeds 85%: or to damp or wet surfaces. 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 the application and drying periods.

PART 2 PRODUCTS

2.1 COLORS

A. All colors will be selected by Architect. Where not specified in the Paint Schedule color selections will be made from manufacturers' full range of colors and color selections may be from one or more manufacturers. Regardless of manufacturer selected by the contractor, colors selected by the Architect must be accurately matched.

2.2 PAINT MATERIALS

A. Provide equivalent quality grade of various types of paints by one or more of the following manufacturers: Pratt & Lambert, Benjamin Moore, Devoe, Glidden Coatings, Sherwin Williams, PPG - Pittsburgh, Tnemec, RD Coatings USA.

1. Proprietary names used for materials and colors are not intended to exclude equivalent products of other acceptable manufacturers.

2. Provide primer and finish coats by the same manufacturer

B. Provide paints of durable and washable quality. Do not use paint materials that will not withstand normal washing as required to remove ordinary natural soiling, etc., without discoloration, loss of gloss, staining or other damage.

2.3 STRIPPING AND CLEANING MATERIALS

A. Paint stripper for galvanized metal: Non-caustic, biodegradable gel for use on paints. Stripping product shall not contain methylene chloride or methanol.

1. Enviro Klean SafStrip 8, by PROSOCO, or approved equal

B. Cleaning materials for wood:

1. Brushes: stiff, short-bristle, non-ferrous brushes

2. Water: potable (tap water)

3. Sandpaper: 80 -100 grit

4. Cleaning (& fungicide) solution: proprietary or non-proprietary sodium percarbonate (oxygen bleach) solution, either of the following:

a. DeckBrite Wood Cleaner & Coating Prep by Wolman Wood Products (www.wolman.com): Solution: 3/4 C powder to 1 gallon lukewarm tap water (appox. 1:21 concentration), stirred to dissolve powder

b. Powdered Sodium Percarbonate (http://alsnetbiz.com/homeimprovement): Solution: min. 2oz. powder to 1quart warm tap water (min. 1:16 concentration), stirred to dissolve powder.

2.4 MISCELLANEOUS PRODUCTS

A. Wood Putty: Water based pre-mixed wood filler.

1. Color match putty to wood substrate beneath clear and semi-transparent finishes.

B. Wood Preservative:

1. Clear, fungicidal wood preservative, Woodlife Classic by Wolman Wood Products, or approved equal.

PART 3 EXECUTION

3.1 INSPECTION

A. Applicator must examine the areas and conditions under which painting or treatment work is to be applied. Notify the Architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.

B. Starting of painting work will be construed as the Contractor's acceptance of the surfaces and conditions within any particular area.

3.2 SURFACE PREPARATION

A. Perform preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.

B. Wood, general: Prime new wood prior to delivery to the job site. Prime/seal edges, ends, face, undersides and backsides.

C. New wood, painted finish:

1. Clean wood surfaces to be painted of oil, grease, all dirt and other foreign substances with scrapers, mineral spirits, and sandpaper, as required before priming. Wash with water and non-ionic detergent. Sand all wood surfaces with 80-120 grit sandpaper to break mill glaze. Sandpaper smooth those finished surfaces exposed to view, and dust off.

2. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other approved sealer, before application of the priming coat.

3. After priming, fill holes and imperfections in surfaces with putty or plastic wood filler. Sandpaper smooth when dry.

D. Existing exterior painted wood:

1. Hand scrape existing wood to remove all loose and flaking paint. Do not remove soundly adhered paint. Feather edges as required for sound base for new paint. Dull gloss on existing paint by sanding, as required, for adhesion of new finish. Remove and replace all previous caulking.

2. Clean wood surfaces with cleaning-fungicide solution. Leave solution on wood for 20± minutes, then brush and rinse with minimal water.

3. Prime bare wood within 24 hours.

E. Ferrous metals:

1. Remove existing paint that is not firmly adhered and all corrosion down to the galvanized surface of the metal, or to clean metal surface where galvanizing is not present, using hand, chemical and/or blast cleaning methods. Do not remove or damage galvanizing. Remove any residual corrosion with a brush, scraper (SSPC SP2) or brush off blast clean (SSPC SP7). Cleaned surface will be free of corrosion and soiling, and roughened for optimum bonding of new paint.

2. Strictly follow the manufacturer's instructions and recommendations regarding shelf life storage, handling, preparation, use, removal and clean up of all chemical strippers.

a. Do not dilute stripper unless specifically recommended by the manufacturer

b. Any method of stripper application recommended by the manufacturer is acceptable, including dipping, spraying, brush or roller application

F. Concrete:

1. Remove any remaining efflorescence by dampening surface with water and scrubbing with a 5 percent solution of muriatic acid. Rinse with clean water, neutralize with ammonia, rinse and allow to dry.

2. Vacuum surface clean before painting.

3. Open concealed voids and cracks, remove cement slurry by wire-brushing to expose clean aggregate substrate, and chip out surface honeycomb pockets to allow a neat cementitious patch with square corners and a uniform thickness.

4. Inspect surfaces to be painted for exposed or rusted steel reinforcement and contact Owner's Representative for a survey of damages to be repaired before substrate can be painted. Do not paint over exposed steel reinforcement without first repairing both deteriorated reinforcement and protective coating.

5. Use an electronic meter to determine moisture content compliance with finish paint manufacturer's recommendations.

6. Paint surfaces in manufacturer's instructions and recommendations.

3.3 MATERIALS PREPARATION

A. Mix and prepare painting materials in accordance with manufacturer's directions.

B. Stir materials before application to produce a mixture of uniform density and stir as required during application of the materials. Do not stir surface film into the material. Remove the film and if necessary, strain the material before using.

1. Pigmented paints should be mechanically agitated or blended before application.

2. Allow mechanically agitated latex paints to stand one hour before application.

C. Do not thin paints, except as specifically recommended by manufacturer.

3.4 WOOD PRESERVATIVE TREATMENT

A. Treat wood components as indicated on the drawings, following paint removal. Apply preservative in successive brush strokes to saturation. At contractor's discretion smaller wood members may be treated by immersion before installation, or reinstallation, on the building.

3.5 PAINT APPLICATION

A. Prime edges of wood boards and siding that have been cut or trimmed in the field within 24 hours of installation

B. Apply paint in accordance with the manufacturer's directions. Use applicators and techniques best suited for the type of material being used.

C. 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 acceptance.

D. Sand lightly between each succeeding enamel coat.

E. Minimum Coating Thickness: Apply each material at not less than the manufacturers recommended spreading rate, to provide a total dry film thickness of not less than 5.0 mils for the entire coating

system of prime and finish coats for three (3) coat work, unless greater dry film thickness (DFT) is indicated in the Paint Schedule.

F. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

3.6 CLEAN-UP

A. Retouch or refinish damaged or incomplete surfaces as required.

B. Upon completion, clean any paint-splattered surfaces.

C. Turn over to Owner all opened containers of paint containing at least one-fourth (1/4) their original volume and all unopened containers that have been mixed specifically for this project. Note on the top of the container the paint designation from the approved finish schedule.

D. Retain empty paint cans until certification by Architect of 100% completion of painting.

3.7 PROTECTION

A. Protect work of other trades, whether to be painted or not, against damage by painting and finish work. Correct any damages by cleaning, repairing, or replacing, and repainting, as directed by the Architect.

B. Provide "Wet Paint" signs as required to protect newly painted finishes.

3.8 PAINTING SCHEDULE

A. Exterior wood, including siding, trim, rafter tails, soffits, fascia and decorative wood components:

1. Primer: Benjamin Moore recommended primer for the wood species and finish coat color

2. Finish coats: 2 coats Benjamin Moore 100% acrylic Aura Exterior Paint Low Lustre

3. Color:

a. Siding: BM 1534 Rodeo

b. Trim and wood panels: HC-134 Tarrytown Green

B. Exterior ferrous metal:

1. Primer: Tnemec Series 66 Hi-Build Epoxoline

2. Finish coats: 2 coats Tnemec Series 1029 Enduratone

3. Color: Tnemec Abyss 56BL

C. Exterior concrete (at basement stairs):

1. Primer: Benjamin Moore recommended primer for existing concrete and finish coat color

2. Finish coats: 2 coats Benjamin Moore 100% acrylic Aura Exterior Paint Low Lustre

3. Color: BM 1534 Rodeo

D. Chimneys

1. Primer: Benjamin Moore recommended primer for masonry and finish coat color

2. Finish coats: 2 coats Benjamin Moore 100% acrylic Aura Exterior Paint Low Lustre

3. Color: BM 1534 Rodeo

END OF SECTION

SECTION 220517

SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Sleeves.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 SLEEVES

A. Cast-Iron Wall Pipes: Cast or fabricated of cast or ductile iron and equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Galvanized-Steel Wall Pipes: ASTM A 53/A 53M, Schedule 40, with plain ends and welded steel collar; zinc coated.

C. Galvanized-Steel-Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, with plain ends.

D. Galvanized-Steel-Sheet Sleeves: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION

A. Install sleeves for piping passing through penetrations in floors, partitions, roofs, and walls.

B. Install sleeves in concrete floors, concrete roof slabs, and concrete walls as new slabs and walls are constructed.
1. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level.

2. Using grout, seal the space outside of sleeves in slabs and walls without sleeve-seal system.

C. Install sleeves for pipes passing through interior partitions.

1. Cut sleeves to length for mounting flush with both surfaces.
2. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation.
3. Seal annular space between sleeve and piping or piping insulation; use joint sealants appropriate for size, depth, and location of joint. Comply with requirements for sealants specified in Section 079000 "Joint Sealants."

D. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestopping specified in Section 078413 "Penetration Firestopping."

3.2 SLEEVE AND SLEEVE-SEAL SCHEDULE

A. Use sleeves and sleeve seals for the following piping-penetration applications:

1. Concrete Slabs above Grade:

a. Piping Smaller Than NPS 6: Galvanized-steel-pipe sleeves

2. Interior Partitions:

a. Piping Smaller Than NPS 6 : Galvanized-steel-pipe sleeves

END OF SECTION 220517

SECTION 220518

ESCUTCHEONS FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Escutcheons.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 ESCUTCHEONS

A. One-Piece, Cast-Brass Type: With polished, chrome-plated finish and setscrew fastener.

B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with chrome-plated finish and spring-clip fasteners.

C. One-Piece, Stamped-Steel Type: With chrome-plated finish and spring-clip fasteners.

D. Split-Casting Brass Type: With polished, chrome-plated finish and with concealed hinge and setscrew.

E. Split-Plate, Stamped-Steel Type: With chrome-plated finish, concealed and exposed-rivet hinge, and spring-clip fasteners.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install escutcheons for piping penetrations of walls, ceilings, and finished floors.

B. Install escutcheons with ID to closely fit around pipe, tube, and insulation of insulated piping and with OD that completely covers opening.

1. Escutcheons for New Piping:

a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.
b. Chrome-Plated Piping: One-piece, cast-brass or split-casting brass type with polished, chrome-plated finish.
c. Insulated Piping: One-piece, stamped-steel type or split-plate, stamped-steel type with concealed hinge or split-plate, stamped-steel type with exposed-rivet hinge.
d. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass or split-casting brass type with polished, chrome-plated finish.
e. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, stamped-steel type or split-plate, stamped-steel type with concealed hinge or split-plate, stamped-steel type with exposed-rivet hinge.

2. Escutcheons for Existing Piping:

a. Chrome-Plated Piping: Split-casting brass type with polished, chrome-plated finish.
b. Insulated Piping: Split-plate, stamped-steel type with concealed or exposed-rivet hinge.
c. Bare Piping at Wall and Floor Penetrations in Finished Spaces: Split-casting brass type with polished, chrome-plated finish.
d. Bare Piping at Wall and Floor Penetrations in Finished Spaces: Split-plate, stamped-steel type with concealed or exposed-rivet hinge.

3.2 FIELD QUALITY CONTROL

A. Replace broken and damaged escutcheons using new materials.

END OF SECTION 220518

SECTION 220523.12

BALL VALVES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Brass ball valves.
2. Bronze ball valves.

1.3 DEFINITIONS

A. CWP: Cold working pressure.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of valve.

1. Certification that products comply with NSF 61 Annex G and NSF 372.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Prepare valves for shipping as follows:

1. Protect internal parts against rust and corrosion.
2. Protect threads, flange faces, and soldered ends.
3. Set ball valves open to minimize exposure of functional surfaces.

B. Use the following precautions during storage:

1. Maintain valve end protection.
2. Store valves indoors and maintain at higher-than-ambient-dew-point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

C. Use sling to handle large valves; rig sling to avoid damage to exposed parts. Do not use operating handles or stems as lifting or rigging points.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR VALVES

A. Source Limitations for Valves: Obtain each type of valve from single source from single manufacturer.

B. ASME Compliance:

1. ASME B1.20.1 for threads for threaded end valves.
2. ASME B16.1 for flanges on iron valves.
3. ASME B16.5 for flanges on steel valves.
4. ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
5. ASME B16.18 for solder-joint connections.
6. ASME B31.9 for building services piping valves.

C. NSF Compliance: NSF 61 Annex G and NSF 372 for valve materials for potable-water service.

D. Bronze valves shall be made with dezincification-resistant materials. Bronze valves made with copper alloy (brass) containing more than 15 percent zinc are not permitted.

E. Valve Pressure-Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.

F. Valve Sizes: Same as upstream piping unless otherwise indicated.

G. Valves in Insulated Piping:

1. Include 2-inch stem extensions.
2. Extended operating handles of nonthermal-conductive material and protective sleeves that allow operation of valves without breaking vapor seals or disturbing insulation.
3. Memory stops that are fully adjustable after insulation is applied.

2.2 BRASS BALL VALVES

A. Two-Piece, Brass Ball Valves with Regular Port and Brass Trim:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Hammond Valve.
b. Legend Valve & Fitting, Inc.
c. Milwaukee Valve Company.
d. NIBCO INC.
e. Watts; a Watts Water Technologies company.

2. Description:

a. Standard: MSS SP-110.
b. CWP Rating: 600 psig
c. Body Design: Two piece.
d. Body Material: Forged brass.
e. Ends: Threaded and soldered.
f. Seats: PTFE.
g. Stem: Brass.
h. Ball: Chrome-plated brass.
i. Port: Regular.
j.

2.3 BRONZE BALL VALVES

A. Two-Piece, Bronze Ball Valves with Regular Port and Bronze or Brass Trim:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Conbraco Industries, Inc.
b. DynaQuip Controls.
c. Hammond Valve.
d. Milwaukee Valve Company.
e. NIBCO INC.
f. Watts; a Watts Water Technologies company.

2. Description:

a. Standard: MSS SP-110.
b. CWP Rating: 600 psig
c. Body Design: Two piece.
d. Body Material: Bronze.
e. Ends: Threaded.
f. Seats: PTFE.
g. Stem: Bronze or brass.
h. Ball: Chrome-plated brass.
i. Port: Regular.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.

B. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.

C. Examine threads on valve and mating pipe for form and cleanliness.

D. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.

E. Do not attempt to repair defective valves; replace with new valves.

3.2 VALVE INSTALLATION

A. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.

B. Locate valves for easy access and provide separate support where necessary.

C. Install valves in horizontal piping with stem at or above center of pipe.

D. Install valves in position to allow full stem movement.

E. Install valve tags. Comply with requirements in Section 220553 "Identification for Plumbing Piping and Equipment" for valve tags and schedules.

3.3 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

A. If valves with specified CWP ratings are unavailable, the same types of valves with higher CWP ratings may be substituted.

B. Select valves with the following end connections:

1. For Copper Tubing, NPS 2 and Smaller: Threaded ends except where solder-joint valve-end option is indicated in valve schedules below.

3.4 DOMESTIC HOT- AND COLD-WATER VALVE SCHEDULE

A. Pipe NPS 2 and Smaller:

1. Bronze and Brass Valves: May be provided with solder-joint ends instead of threaded ends.
2. Two-piece, bronze ball valves with regular port and bronze or brass trim.

END OF SECTION 220523.12

SECTION 220529

HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Metal pipe hangers and supports.
2. Pipe positioning systems.

1.3 DEFINITIONS

A. MSS: Manufacturers Standardization Society of The Valve and Fittings Industry Inc.

1.4 PERFORMANCE REQUIREMENTS

A. Structural Performance: Hangers and supports for plumbing piping and equipment shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7

1. Design supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.6 INFORMATIONAL SUBMITTALS

A. Welding certificates.

1.7 QUALITY ASSURANCE

A. Structural Steel Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Pipe Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

PART 2 - PRODUCTS

2.1 METAL PIPE HANGERS AND SUPPORTS

A. Carbon-Steel Pipe Hangers and Supports:

1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.
2. Galvanized Metallic Coatings: Pregalvanized or hot dipped.
3. Nonmetallic Coatings: Plastic coating, jacket, or liner.
4. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.
5. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel

B. Copper Pipe Hangers:

1. Description: MSS SP-58, Types 1 through 58, copper-coated-steel, factory-fabricated components.
2. Hanger Rods: Continuous-thread rod, nuts, and washer made of copper-coated steel

2.2 FASTENER SYSTEMS

A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

B. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel anchors, for use in hardened portland cement concrete; with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

2.3 PIPE POSITIONING SYSTEMS

A. Description: IAPMO PS 42, positioning system of metal brackets, clips, and straps for positioning piping in pipe spaces; for plumbing fixtures in commercial applications.

2.4 MISCELLANEOUS MATERIALS

A. Structural Steel: ASTM A 36/A 36M, carbon-steel plates, shapes, and bars; black and galvanized.

B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.

1. Properties: Nonstaining, noncorrosive, and nongaseous.
2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT INSTALLATION

A. Metal Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from the building structure.

B. Fastener System Installation:

1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.

C. Pipe Positioning-System Installation: Install support devices to make rigid supply and waste piping connections to each plumbing fixture.

D. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.

E. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

F. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.

G. Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

H. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.

I. Insulated Piping:

1. Attach clamps and spacers to piping.

   a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
   b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
   c. Do not exceed pipe stress limits allowed by ASME B31.9 for building services piping.

2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.

   a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.

3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.

   a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.

4. Shield Dimensions for Pipe: Not less than the following:

   a. NPS 1/4 to NPS 4: 12 inches long and 0.048 inch thick.

3.2 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches

3.3 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils

B. Touchup: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal are specified in Section 099123 "Interior Painting."

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

3.4 HANGER AND SUPPORT SCHEDULE

A. Specific hanger and support requirements are in Sections specifying piping systems and equipment.

B. Comply with MSS SP-69 for pipe-hanger selections and applications that are not specified in piping system Sections.

C. Use hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finish.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use carbon-steel pipe hangers and supports and attachments for general service applications.

F. Use copper-plated pipe hangers and copper attachments for copper piping and tubing.

G. Use padded hangers for piping that is subject to scratching.

H. Use thermal-hanger shield inserts for insulated piping and tubing.

I. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated, stationary pipes NPS 1/2 to NPS 30.
2. Yoke-Type Pipe Clamps (MSS Type 2): For suspension of up to 1050 deg F, pipes NPS 4 to NPS 24, requiring up to 4 inches of insulation.
3. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes NPS 3/4 to NPS 36, requiring clamp flexibility and up to 4 inches of insulation.
4. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes NPS 1/2 to NPS 24 if little or no insulation is required.

5. Pipe Hangers (MSS Type 5): For suspension of pipes NPS 1/2 to NPS 4, to allow off-center closure for hanger installation before pipe erection.
6. Adjustable, Swivel Split- or Solid-Ring Hangers (MSS Type 6): For suspension of noninsulated, stationary pipes NPS 3/4 to NPS 8.
7. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
8. Adjustable Band Hangers (MSS Type 9): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
9. Adjustable, Swivel-Ring Band Hangers (MSS Type 10): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
10. Split Pipe Ring with or without Turnbuckle Hangers (MSS Type 11): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 8.
11. Extension Hinged or Two-Bolt Split Pipe Clamps (MSS Type 12): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 3.
12. U-Bolts (MSS Type 24): For support of heavy pipes NPS 1/2 to NPS 30.
13. Clips (MSS Type 26): For support of insulated pipes not subject to expansion or contraction.
14. Pipe Saddle Supports (MSS Type 36): For support of pipes NPS 4 to NPS 36, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate.
15. Pipe Stanchion Saddles (MSS Type 37): For support of pipes NPS 4 to NPS 36, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate, and with U-bolt to retain pipe.
16. Adjustable Pipe Saddle Supports (MSS Type 38): For stanchion-type support for pipes NPS 2-1/2 to NPS 36 if vertical adjustment is required, with steel-pipe base stanchion support and cast-iron floor flange.

J. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24.
2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24 if longer ends are required for riser clamps.

K. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
3. Swivel Turnbuckles (MSS Type 15): For use with MSS Type 11, split pipe rings.
4. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.
5. Steel Weldless Eye Nuts (MSS Type 17): For 120 to 450 deg F piping installations.

L. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction, to attach to top flange of structural shape.
3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
6. C-Clamps (MSS Type 23): For structural shapes.
7. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.
8. Side-Beam Clamps (MSS Type 27): For bottom of steel I-beams.

9. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.
10. Linked-Steel Clamps with Eye Nuts (MSS Type 29): For attaching to bottom of steel I-beams for heavy loads, with link extensions.
11. Malleable-Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel.
12. Welded-Steel Brackets: For support of pipes from below or for suspending from above by using clip and rod. Use one of the following for indicated loads:

    a. Light (MSS Type 31): 750 lb
    b. Medium (MSS Type 32): 1500 lb
    c. Heavy (MSS Type 33): 3000 lb

13. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
14. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.
15. Horizontal Travelers (MSS Type 58): For supporting piping systems subject to linear horizontal movement where headroom is limited.

M. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel-Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.

N. Comply with MSS SP-69 for trapeze pipe-hanger selections and applications that are not specified in piping system Sections.

O. Comply with MFMA-103 for metal framing system selections and applications that are not specified in piping system Sections.

P. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

Q. Use pipe positioning systems in pipe spaces behind plumbing fixtures to support supply and waste piping for plumbing fixtures.

END OF SECTION 220529

SECTION 220553

IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Pipe labels.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For color, letter style, and graphic representation required for each identification material and device.

PART 2 - PRODUCTS

2.1 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.

B. Pretensioned Pipe Labels: Precoiled, semirigid plastic formed to partially cover circumference of pipe and to attach to pipe without fasteners or adhesive.

C. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.

D. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings; also include pipe size and an arrow indicating flow direction.

1. Flow-Direction Arrows: Integral with piping-system service lettering to accommodate both directions or as separate unit on each pipe label to indicate flow direction.
2. Lettering Size: Size letters according to ASME A13.1 for piping

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Coordinate installation of identifying devices with locations of access panels and doors.

C. Install identifying devices before installing acoustical ceilings and similar concealment.

3.3 PIPE LABEL INSTALLATION

A. Piping Color Coding: Painting of piping is specified in Section 099000 "Interior Painting."

B. Pipe Label Locations: Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:

1. Near each valve and control device.
2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
4. At access doors, manholes, and similar access points that permit view of concealed piping.
5. Near major equipment items and other points of origination and termination.
6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.
7. On piping above removable acoustical ceilings. Omit intermediately spaced labels.

C. Directional Flow Arrows: Arrows shall be used to indicate direction of flow in pipes, including pipes where flow is allowed in both directions.

D. Pipe Label Color Schedule:

1. Domestic Water Piping

   a. Background: Safety green
   b. Letter Colors: White

2. Sanitary Waste Piping:

   a. Background Color: Safety black
   b. Letter Color: White

END OF SECTION 220553

SECTION 221116

DOMESTIC WATER PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Aboveground domestic water pipes, tubes, and fittings inside buildings.

1.3 ACTION SUBMITTALS

A. Product Data: For transition fittings and dielectric fittings.

B. LEED Submittals:

1. Product Data for Credit IEQ 4.1: For solvent cements and adhesive primers, documentation including printed statement of VOC content.
2. Laboratory Test Reports for Credit IEQ 4: For solvent cements and adhesive primers, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

1.4 INFORMATIONAL SUBMITTALS

A. System purging and disinfecting activities report.

B. Field quality-control reports.

1.5 FIELD CONDITIONS

A. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:

1. Do not interrupt water service without Owner's written permission.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

B. Potable-water piping and components shall comply with NSF 14 and NSF 61 Annex G.

2.2 COPPER TUBE AND FITTINGS

A. Hard Copper Tube: ASTM B 88, Type L water tube, drawn temper.

B. Cast-Copper, Solder-Joint Fittings: ASME B16.18, pressure fittings.

C. Wrought-Copper, Solder-Joint Fittings: ASME B16.22, wrought-copper pressure fittings.

D. Bronze Flanges: ASME B16.24, Class 150, with solder-joint ends.

E. Copper Unions:

1. MSS SP-123.
2. Cast-copper-alloy, hexagonal-stock body.
3. Ball-and-socket, metal-to-metal seating surfaces.
4. Solder-joint or threaded ends.

2.3 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials:

1. AWWA C110/A21.10, rubber, flat face, 1/8 inch thick or ASME B16.21, nonmetallic and asbestos free unless otherwise indicated.
2. Full-face or ring type unless otherwise indicated.

B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.

C. Solder Filler Metals: ASTM B 32, lead-free alloys.

D. Flux: ASTM B 813, water flushable.

E. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.

B. Install copper tubing under building slab according to CDA's "Copper Tube Handbook."

C. Install shutoff valve, hose-end drain valve, strainer, pressure gage, and test tee with valve inside the building at each domestic water-service entrance. Comply with requirements for pressure gages in Section 220519 "Meters and Gages for Plumbing Piping" and with requirements for drain valves and strainers in Section 221119 "Domestic Water Piping Specialties."

D. Install domestic water piping level without pitch and plumb.

E. Install piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas.

F. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal, and coordinate with other services occupying that space.

G. Install piping to permit valve servicing.

H. Install nipples, unions, special fittings, and valves with pressure ratings the same as or higher than the system pressure rating used in applications below unless otherwise indicated.

I. Install piping free of sags and bends.

J. Install fittings for changes in direction and branch connections.

K. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."

L. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 220518 "Escutcheons for Plumbing Piping."

3.2 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

D. Brazed Joints for Copper Tubing: Comply with CDA's "Copper Tube Handbook," "Brazed Joints" chapter.

E. Soldered Joints for Copper Tubing: Apply ASTM B 813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B 828 or CDA's "Copper Tube Handbook."

F. Pressure-Sealed Joints for Copper Tubing: Join copper tube and pressure-seal fittings with tools recommended by fitting manufacturer.

G. Push-on Joints for Copper Tubing: Clean end of tube. Measure insertion depth with manufacturer's depth gage. Join copper tube and push-on-joint fittings by inserting tube to measured depth.

H. Extruded-Tee Connections: Form tee in copper tube according to ASTM F 2014. Use tool designed for copper tube; drill pilot hole, form collar for outlet, dimple tube to form seating stop, and braze branch tube into collar.

I. Joint Construction for Grooved-End Copper Tubing: Make joints according to AWWA C606. Roll groove ends of tubes. Lubricate and install gasket over ends of tubes or tube and fitting. Install coupling housing sections over gasket with keys seated in tubing grooves. Install and tighten housing bolts.

J. Joint Construction for Grooved-End, Ductile-Iron Piping: Make joints according to AWWA C606. Cut round-bottom grooves in ends of pipe at gasket-seat dimension required for specified (flexible or rigid) joint. Lubricate and install gasket over ends of pipes or pipe and fitting. Install coupling housing sections over gasket with keys seated in piping grooves. Install and tighten housing bolts.

3.3 HANGER AND SUPPORT INSTALLATION

A. Comply with requirements for pipe hanger, support products, and installation in Section 220529 "Hangers and Supports for Plumbing Piping and Equipment."

1. Vertical Piping: MSS Type 8 or 42, clamps.
2. Individual, Straight, Horizontal Piping Runs:

    a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
    b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
    c. Longer Than 100 Feet if Indicated: MSS Type 49, spring cushion rolls.

3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
4. Base of Vertical Piping: MSS Type 52, spring hangers.

B. Support vertical piping and tubing at base and at each floor.

C. Rod diameter may be reduced one size for double-rod hangers, to a minimum of 3/8 inch.

D. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 3/4 and Smaller: 60 inches with 3/8-inch rod.
2. NPS 1 and NPS 1-1/4: 72 inches with 3/8-inch rod.

E. Install supports for vertical copper tubing every 10 feet.

F. Support piping and tubing not listed in this article according to MSS SP-69 and manufacturer's written instructions.

3.4 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. When installing piping adjacent to equipment and machines, allow space for service and maintenance.

C. Connect domestic water piping to water-service piping with shutoff valve; extend and connect to the following:
1. Plumbing Fixtures: Cold- and hot-water-supply piping in sizes indicated, but not smaller than that required by plumbing code.

3.5 IDENTIFICATION

A. Identify system components. Comply with requirements for identification materials and installation in Section 220553 "Identification for Plumbing Piping and Equipment."

3.6 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Piping Inspections:

a. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
b. During installation, notify authorities having jurisdiction at least one day before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:

1) Roughing-in Inspection: Arrange for inspection of piping before concealing or closing in after roughing in and before setting fixtures.
2) Final Inspection: Arrange for authorities having jurisdiction to observe tests specified in "Piping Tests" Subparagraph below and to ensure compliance with requirements.

c. Reinspection: If authorities having jurisdiction find that piping will not pass tests or inspections, make required corrections and arrange for reinspection.
d. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

2. Piping Tests:

a. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.
b. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.
c. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.
d. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow it to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
e. Repair leaks and defects with new materials, and retest piping or portion thereof until satisfactory results are obtained.
f. Prepare reports for tests and for corrective action required.

B. Domestic water piping will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.7 ADJUSTING

A. Perform the following adjustments before operation:

1. Close drain valves, hydrants, and hose bibbs.
2. Open shutoff valves to fully open position.
3. Open throttling valves to proper setting.
4. Adjust balancing valves in hot-water-circulation return piping to provide adequate flow.

a. Manually adjust ball-type balancing valves in hot-water-circulation return piping to provide hot-water flow in each branch.
b. Adjust calibrated balancing valves to flows indicated.

5. Remove plugs used during testing of piping and for temporary sealing of piping during installation.
6. Remove and clean strainer screens. Close drain valves and replace drain plugs.
7. Remove filter cartridges from housings and verify that cartridges are as specified for application where used and are clean and ready for use.

8. Check plumbing specialties and verify proper settings, adjustments, and operation.

3.8 CLEANING

A. Clean non-potable domestic water piping as follows:

1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
2. Use purging procedures prescribed by authorities having jurisdiction or; if methods are not prescribed, follow procedures described below:

a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
b. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.

B. Prepare and submit reports of purging and disinfecting activities. Include copies of water-sample approvals from authorities having jurisdiction.

C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

3.9 PIPING SCHEDULE

A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

B. Flanges and unions may be used for aboveground piping joints unless otherwise indicated.

C. Fitting Option: Extruded-tee connections and brazed joints may be used on aboveground copper tubing.

D. Aboveground domestic water piping, NPS 2 and smaller, shall be one of the following:
1. Hard copper tube, ASTM B 88, Type L; cast- or wrought-copper, solder-joint fittings; and soldered joints.
2. Hard copper tube, ASTM B 88, Type L; copper pressure-seal-joint fittings; and pressure-sealed joints.
3. Hard copper tube, ASTM B 88, Type L; copper push-on-joint fittings; and push-on joints.

3.10 VALVE SCHEDULE

A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:

1. Shutoff Duty: Use ball or gate valves for piping NPS 2 and smaller.
2. Throttling Duty: Use ball or globe valves for piping NPS 2 and smaller.
3. Drain Duty: Hose-end drain valves.

END OF SECTION 221116

SECTION 221119

DOMESTIC WATER PIPING SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Water-hammer arresters.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For domestic water piping specialties.

1. Include diagrams for power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For domestic water piping specialties to include in emergency, operation, and maintenance manuals.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Minimum Working Pressure for Domestic Water Piping Specialties: 125 psig unless otherwise indicated.

2.2 WATER-HAMMER ARRESTERS

A. Water-Hammer Arresters:
1. Standard: ASSE 1010 or PDI-WH 201.
2. Type: Copper tube with piston.
3. Size: ASSE 1010, Sizes AA and A through F, or PDI-WH 201, Sizes A through F.

2.3 SPECIALTY VALVES

A. Comply with requirements for general-duty metal valves in Section 220523.12 "Ball Valves for Plumbing Piping,"

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install water-hammer arresters in water piping according to PDI-WH 201.

3.2 FIELD QUALITY CONTROL

A. Domestic water piping specialties will be considered defective if they do not pass tests and inspections.

B. Prepare test and inspection reports.

END OF SECTION 221119

SECTION 221316

SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Pipe, tube, and fittings.

1.3 PERFORMANCE REQUIREMENTS

A. Components and installation shall be capable of withstanding the following minimum working pressure unless otherwise indicated:

1. Soil, Waste, and Vent Piping: 10-foot head of water

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For sovent drainage system. Include plans, elevations, sections, and details.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

1.7 PROJECT CONDITIONS

A. Interruption of Existing Sanitary Waste Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:
1. Do not proceed with interruption of sanitary waste service without Owner's written permission.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

2.2 HUB-AND-SPIGOT, CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A 74, Service and Extra Heavy class(es).

B. Gaskets: ASTM C 564, rubber.

C. Calking Materials: ASTM B 29, pure lead and oakum or hemp fiber.

2.3 HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A 888 or CISPI 301.

B. Sovent Stack Fittings: ASME B16.45 or ASSE 1043, hubless, cast-iron aerator and deaerator drainage fittings.

C. CISPI, Hubless-Piping Couplings:
1. Standards: ASTM C 1277 and CISPI 310.
2. Description: Stainless-steel corrugated shield with stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve with integral, center pipe stop.

D. Cast-Iron, Hubless-Piping Couplings:
1. Standard: ASTM C 1277.
2. Description: Two-piece ASTM A 48/A 48M, cast-iron housing; stainless-steel bolts and nuts; and ASTM C 564, rubber sleeve with integral, center pipe stop.

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.

B. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.

C. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

D. Install piping at indicated slopes.

E. Install piping free of sags and bends.

F. Install fittings for changes in direction and branch connections.

G. Install piping to allow application of insulation.

H. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long-turn, double Y-branch and 1/8-bend fittings if two fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

I. Install soil and waste drainage and vent piping at the following minimum slopes unless otherwise indicated:

1. Building Sanitary Drain: 2 percent downward in direction of flow for piping NPS 3 and smaller; 1 percent downward in direction of flow for piping NPS 4 and larger.
2. Horizontal Sanitary Drainage Piping: 2 percent downward in direction of flow.
3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.

J. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."

K. Plumbing Specialties:
1. Install drains in sanitary drainage gravity-flow piping. Comply with requirements for drains specified in Section 221319 "Sanitary Waste Piping Specialties."

L. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

M. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."

N. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."

O. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 220518 "Escutcheons for Plumbing Piping."

3.2 JOINT CONSTRUCTION

A. Join hub-and-spigot, cast-iron soil piping with gasket joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.

B. Join hub-and-spigot, cast-iron soil piping with calked joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead-and-oakum calked joints.

C. Join hubless, cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-piping coupling joints.

3.3 HANGER AND SUPPORT INSTALLATION

A. Comply with requirements for pipe hanger and support devices and installation specified in Section 220529 "Hangers and Supports for Plumbing Piping and Equipment."

1. Install carbon-steel pipe hangers for horizontal piping in noncorrosive environments.
2. Install carbon-steel pipe support clamps for vertical piping in noncorrosive environments.
3. Vertical Piping: MSS Type 8 or Type 42, clamps.
4. Install individual, straight, horizontal piping runs:

a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.

c. Longer Than 100 Feet if Indicated: MSS Type 49, spring cushion rolls.

5. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
6. Base of Vertical Piping: MSS Type 52, spring hangers.

B. Support horizontal piping and tubing within 12 inches of each fitting and coupling.

C. Support vertical piping and tubing at base and at each floor.

D. Rod diameter may be reduced one size for double-rod hangers, with 3/8-inch minimum rods.

E. Install hangers for cast-iron soil piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/2 and NPS 2: 60 inches with 3/8-inch rod.
2. Spacing for 10-foot lengths may be increased to 10 feet. Spacing for fittings is limited to 60 inches.

F. Install supports for vertical cast-iron soil piping every 15 feet.

3.4 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.

C. Connect drainage and vent piping to the following:

1. Plumbing Fixtures: Connect drainage piping in sizes indicated, but not smaller than required by plumbing code.
2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by authorities having jurisdiction.
3. Plumbing Specialties: Connect drainage and vent piping in sizes indicated, but not smaller than required by plumbing code.
4. Install test tees (wall cleanouts) in conductors near floor and floor cleanouts with cover flush with floor.
5. Comply with requirements for cleanouts and drains specified in Section 221319 "Sanitary Waste Piping Specialties."

D. Make connections according to the following unless otherwise indicated:

1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.

3.5 IDENTIFICATION

A. Identify exposed sanitary waste and vent piping. Comply with requirements for identification specified in Section 220553 "Identification for Plumbing Piping and Equipment."

3.6 FIELD QUALITY CONTROL

A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.

1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.

C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

D. Test sanitary drainage and vent piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:

1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
2. Leave uncovered and unconcealed new, altered, extended, or replaced drainage and vent piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
3. Roughing-in Plumbing Test Procedure: Test drainage and vent piping except outside leaders on completion of roughing-in. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water. From 15 minutes before inspection starts to completion of inspection, water level must not drop. Inspect joints for leaks.
4. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
5. Prepare reports for tests and required corrective action.

3.7 CLEANING AND PROTECTION

A. Clean interior of piping. Remove dirt and debris as work progresses.

B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

C. Place plugs in ends of uncompleted piping at end of day and when work stops.

3.8 PIPING SCHEDULE

A. Flanges and unions may be used on aboveground pressure piping unless otherwise indicated.

B. Aboveground, soil and waste piping NPS 4 and smaller shall be any of the following:

1. Service class, cast-iron soil pipe and fittings; gaskets; and gasketed joints.
2. Hubless, cast-iron soil pipe and fittings and sovent stack fittings; CISPI hubless-piping couplings; and coupled joints.

C. Aboveground, vent piping NPS 4 and smaller shall be any of the following:

1. Service class, cast-iron soil pipe and fittings; gaskets; and gasketed joints.
2. Hubless, cast-iron soil pipe and fittings; CISPI hubless-piping couplings; and coupled joints.

END OF SECTION 221316

SECTION 221319 - SANITARY WASTE PIPING SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Cleanouts.

1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For drainage piping specialties to include in emergency, operation, and maintenance manuals.

1.4 QUALITY ASSURANCE

A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agency.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with NSF 14, "Plastics Piping Components and Related Materials," for plastic sanitary piping specialty components.

D. Coordinate size and location of roof penetrations.

PART 2 - PRODUCTS

2.1 CLEANOUTS

A. Exposed Metal Cleanouts:

   1. ASME A112.36.2M, Cast-Iron Cleanouts:
   2. Standard: ASME A112.36.2M for cast iron for cleanout test tee.
   3. Size: Same as connected drainage piping
   4. Body Material: Hubless, cast-iron soil pipe test tee as required to match connected piping.
   5. Closure: Countersunk or raised-head plug.
   6. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
   7. Closure: Stainless-steel plug with seal.

B. Cast-Iron Wall Cleanouts:
   1. Standard: ASME A112.36.2M. Include wall access.
   2. Size: Same as connected drainage piping.
   3. Body: Hubless, cast-iron soil pipe test tee as required to match connected piping.
   4. Closure: Countersunk or raised-head, cast-iron plug.

5. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
6. Wall Access: Round, deep, chrome-plated bronze cover plate with screw.
7. Wall Access: Round wall-installation frame and cover.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install cleanouts in aboveground piping and building drain piping according to the following, unless otherwise indicated:

1. Size same as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger cleanout is indicated.
2. Locate at each change in direction of piping greater than 45 degrees.
3. Locate at minimum intervals of 50 feet for piping NPS 4 and smaller and 100 feet for larger piping.
4. Locate at base of each vertical soil and waste stack.

B. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.

C. Install through-penetration firestop assemblies in plastic conductors and stacks at floor penetrations.

3.2 CONNECTIONS

A. Comply with requirements in Section 221316 "Sanitary Waste and Vent Piping" for piping installation requirements. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment to allow service and maintenance.

C. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit. Nameplates and signs are specified in Section 220553 "Identification for Plumbing Piping and Equipment."

3.3 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.4 PROTECTION

A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.

B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION 221319

SECTION 230523.11

GLOBE VALVES FOR HVAC PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Bronze angle valves.
2. Bronze globe valves.
3. Iron globe valves.

1.3 DEFINITIONS

A. CWP: Cold working pressure.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of valve.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Prepare valves for shipping as follows:

1. Protect internal parts against rust and corrosion.
2. Protect threads, flange faces, grooves, and weld ends.
3. Set angle and globe valves closed to prevent rattling.

B. Use the following precautions during storage:

1. Maintain valve end protection.
2. Store valves indoors and maintain at higher-than-ambient dew point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

C. Use sling to handle large valves; rig sling to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR VALVES

A. Source Limitations for Valves: Obtain each type of valve from single source from single manufacturer.

B. ASME Compliance:

1. ASME B1.20.1 for threads for threaded-end valves.
2. ASME B16.1 for flanges on iron valves.
3. ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
4. ASME B16.18 for solder joint.
5. ASME B31.1 for power piping valves.
6. ASME B31.9 for building services piping valves.

C. Refer to HVAC valve schedule articles for applications of valves.

D. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.

E. Valve Sizes: Same as upstream piping unless otherwise indicated.

F. Valves in Insulated Piping: With 2-inch stem extensions.

2.2 BRONZE ANGLE VALVES

A. Bronze Angle Valves, Class 125:

1. NIBCO, Apollo Valves, Argco
2. Description:

a. Standard: MSS SP-80, Type 1.
b. CWP Rating: 200 psig.
c. Body Material: ASTM B62, bronze with integral seat and screw-in bonnet.
d. Ends: Threaded.
e. Stem and Disc: Bronze Stem and PTFE Disc.
f. Packing: Asbestos free.
g. Handwheel: Malleable iron, bronze, or aluminum.

B. Bronze Angle Valves, Class 150:

1. NIBCO, Ferguson Enterprises, Apollo Valves
2. Description:

a. Standard: MSS SP-80, Type 1.
b. CWP Rating: 300 psig.
c. Body Material: ASTM B62, bronze with integral seat and union-ring bonnet.
d. Ends: Threaded.
e. Stem and Disc: Bronze Stem and PTFE Disc.
f. Packing: Asbestos free.
g. Handwheel: Malleable iron, bronze, or aluminum.

2.3 BRONZE GLOBE VALVES

A. Bronze Globe Valves, Class 125:

1. NIBCO, Ferguson Enterprises, Aalberts Industries
2. Description:

    a. Standard: MSS SP-80, Type 1.
    b. CWP Rating: 200 psig.
    c. Body Material: ASTM B62, bronze with integral seat and screw-in bonnet.
    d. Ends: Solder joint.
    e. Stem and Disc: Bronze Stem and PTFE Disc.
    f. Packing: Asbestos free.
    g. Handwheel: Malleable iron, bronze, or aluminum.

B. Bronze Globe Valves, Class 150:

1. NIBCO, Aalberts Industries, Ferguson Enterprises
2. Description:

    a. Standard: MSS SP-80, Type 2.
    b. CWP Rating: 300 psig.
    c. Body Material: ASTM B62, bronze with integral seat and union-ring bonnet.
    d. Ends: Threaded.
    e. Stem: Bronze.
    f. Disc: PTFE.
    g. Packing: Asbestos free.
    h. Handwheel: Malleable iron, bronze, or aluminum.

2.4 IRON GLOBE VALVES

A. Iron Globe Valves, Class 125:

1. NIBCO, Aalberts Industries, Ferguson Enterprises, Apollo Valves
2. Description:

    a. Standard: MSS SP-85, Type I.
    b. CWP Rating: 200 psig.
    c. Body Material: ASTM A126, gray iron with bolted bonnet.
    d. Ends: Flanged.
    e. Trim: Bronze.
    f. Packing and Gasket: Asbestos free.
    g. Operator: Handwheel or chainwheel.

B. Iron Globe Valves, Class 250:

1. NIBCO, Aalberts Industries, Ferguson Enterprises, Apollo Valves
2. Description:

    a. Standard: MSS SP-85, Type I.
    b. CWP Rating: 500 psig.
    c. Body Material: ASTM A126, gray iron with bolted bonnet.
    d. Ends: Flanged.
    e. Trim: Bronze.
    f. Packing and Gasket: Asbestos free.
    g. Operator: Handwheel or chainwheel.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.

B. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.

C. Examine threads on valve and mating pipe for form and cleanliness.

D. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.

E. Do not attempt to repair defective valves; replace with new valves.

3.2 VALVE INSTALLATION

A. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.

B. Locate valves for easy access and provide separate support where necessary.

C. Install valves in horizontal piping with stem at or above center of pipe.

D. Install valves in position to allow full stem movement.

E. Install valve tags. Comply with requirements in Section 230553 "Identification for HVAC Piping and Equipment" for valve tags and schedules.

3.3 ADJUSTING

A. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.

3.4 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

A. If valves with specified CWP ratings are unavailable, the same types of valves with higher CWP ratings may be substituted.

B. Select valves with the following end connections:

1. For Copper Tubing, NPS 2 and Smaller: Threaded ends except where solder-joint valve-end option is indicated in valve schedules.
2. For Copper Tubing, NPS 2-1/2 to NPS 4: Flanged ends except where threaded valve-end option is indicated in valve schedules.
3. For Copper Tubing, NPS 5 and Larger: Flanged ends.
4. For Steel Piping, NPS 2 and Smaller: Threaded ends.
5. For Steel Piping, NPS 2-1/2 to NPS 4: Flanged ends except where threaded valve-end option is indicated in valve schedules.
6. For Steel Piping, NPS 5 and Larger: Flanged ends.

END OF SECTION 230523.11

SECTION 23 05 29

HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Metal pipe hangers and supports.
2. Thermal-hanger shield inserts.
3. Fastener systems.
4. Equipment supports.

1.3 DEFINITIONS

A. MSS: Manufacturers Standardization Society of The Valve and Fittings Industry Inc.

1.4 PERFORMANCE REQUIREMENTS

A. Structural Performance: Hangers and supports for HVAC piping and equipment shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.

1. Design supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.
2. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Signed and sealed by a qualified professional engineer. Show fabrication and installation details and include calculations for the following; include Product Data for components:

1. Metal framing systems.
2. Fiberglass strut systems.
3. Pipe stands.
4. Equipment supports.

1.6 Design Calculations: Calculate requirements for designing trapeze hangers INFORMATIONAL SUBMITTALS.

1.7 QUALITY ASSURANCE

A. Structural Steel Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Pipe Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

PART 2 - PRODUCTS

2.1 METAL PIPE HANGERS AND SUPPORTS

A. Carbon-Steel Pipe Hangers and Supports:

1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.
2. Galvanized Metallic Coatings: Pregalvanized or hot dipped.
3. Nonmetallic Coatings: Plastic coating, jacket, or liner.
4. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.
5. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel.

2.2 THERMAL-HANGER SHIELD INSERTS

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. NEFCO
b. EATON
c. Piping Technology & Products, Inc.
d. NATIONAL PIPE HANGER

B. Insulation-Insert Material for Cold Piping: ASTM C 552, Type II cellular glass with 100-psig minimum compressive strength and vapor barrier.

C. Insulation-Insert Material for Hot Piping: Water-repellent treated, ASTM C 533, Type I calcium silicate with 100-psig minimum compressive strength.

D. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.

E. Insert Length: Extend 2 inches beyond sheet metal shield for all insulated piping.

2.3 FASTENER SYSTEMS

A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

B. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel anchors, for use in hardened portland cement concrete; with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

2.4 EQUIPMENT SUPPORTS

A. Description: Welded, shop- or field-fabricated equipment support made from structural carbon-steel shapes.

2.5 MISCELLANEOUS MATERIALS

A. Structural Steel: ASTM A 36/A 36M, carbon-steel plates, shapes, and bars; black and galvanized.

B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.

1. Properties: Nonstaining, noncorrosive, and nongaseous.
2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT INSTALLATION

A. Metal Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from the building structure.

B. Metal Trapeze Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping, and support together on field-fabricated trapeze pipe hangers.

1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified for individual pipe hangers.
2. Field fabricate from ASTM A 36/A 36M, carbon-steel shapes selected for loads being supported. Weld steel according to AWS D1.1/D1.1M.

C. Fiberglass Pipe-Hanger Installation: Comply with applicable portions of MSS SP-69 and MSS SP-89. Install hangers and attachments as required to properly support piping from building structure.

D. Fiberglass Strut System Installation: Arrange for grouping of parallel runs of piping, and support together on field-assembled fiberglass struts.

E. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.

F. Fastener System Installation:

1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.

G. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.

H. Equipment Support Installation: Fabricate from welded-structural-steel shapes.

I. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

J. Install lateral bracing with pipe hangers and supports to prevent swaying.

K. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.

L. Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

M. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.

N. Insulated Piping:

1. Attach clamps and spacers to piping.

    a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
    b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
    c. Do not exceed pipe stress limits allowed by ASME B31.9 for building services piping.

2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.

    a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.

3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.

    a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.

4. Shield Dimensions for Pipe: Not less than the following:

    a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
    b. NPS 4: 12 inches long and 0.06 inch thick.

5. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.

3.2 EQUIPMENT SUPPORTS

A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.

B. Grouting: Place grout under supports for equipment and make bearing surface smooth.

C. Provide lateral bracing, to prevent swaying, for equipment supports.

3.3 METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for equipment supports.

B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

C. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work; and with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Finish welds at exposed connections so no roughness shows after finishing and so contours of welded surfaces match adjacent contours.

3.4 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

3.5 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils.

B. Touchup: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal are specified in Section 099123 "Interior Painting"

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

3.6 HANGER AND SUPPORT SCHEDULE

A. Specific hanger and support requirements are in Sections specifying piping systems and equipment.

B. Comply with MSS SP-69 for pipe-hanger selections and applications that are not specified in piping system Sections.

C. Use hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finish.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use carbon-steel pipe hangers and supports and attachments for general service applications.

F. Use stainless-steel pipe hangers and corrosion-resistant attachments for hostile environment applications.

G. Use copper-plated pipe hangers and copper attachments for copper piping and tubing.

H. Use padded hangers for piping that is subject to scratching.

I. Use thermal-hanger shield inserts for insulated piping and tubing.

J. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated, stationary pipes NPS 1/2 to NPS 30.
2. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes NPS 3/4 to NPS 36, requiring clamp flexibility and up to 4 inches of insulation.
3. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes NPS 1/2 to NPS 24 if little or no insulation is required.
4. Pipe Hangers (MSS Type 5): For suspension of pipes NPS 1/2 to NPS 4, to allow off-center closure for hanger installation before pipe erection.
5. Clips (MSS Type 26): For support of insulated pipes not subject to expansion or contraction.

K. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24.
2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24 if longer ends are required for riser clamps.

L. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
2. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.

M. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction, to attach to top flange of structural shape.
3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
6. C-Clamps (MSS Type 23): For structural shapes.
7. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.
8. Side-Beam Clamps (MSS Type 27): For bottom of steel I-beams.
9. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.
10. Linked-Steel Clamps with Eye Nuts (MSS Type 29): For attaching to bottom of steel I-beams for heavy loads, with link extensions.
11. Malleable-Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel.
12. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
13. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.
14. Horizontal Travelers (MSS Type 58): For supporting piping systems subject to linear horizontal movement where headroom is limited.

N. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel-Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.

3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.

O. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Restraint-Control Devices (MSS Type 47): Where indicated to control piping movement.
2. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches.
3. Variable-Spring Hangers (MSS Type 51): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from hanger.

P. Comply with MSS SP-69 for trapeze pipe-hanger selections and applications that are not specified in piping system Sections.

Q. Comply with MFMA-103 for metal framing system selections and applications that are not specified in piping system Sections.

R. Use mechanical-expansion anchors instead of building attachments where required in concrete construction.

END OF SECTION 23 05 29

SECTION 260511

GENERAL PROVISIONS FOR ELECTRICAL WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including Specification Sections, apply to this section.

1.2 REFERENCE STANDARDS

A. Compliance with the following standards (latest edition) shall be required:

1. NEMA National Electrical Manufacturers Association.
2. NFPA National Fire Protection Association.
3. ANSI American National Standards Institute.
4. NEC National Electrical Code, NFPA 70.
5. UL Underwriters Laboratories.

1.3 DESCRIPTION OF WORK

A. Drawings are diagrammatic and are a graphic representation of contract requirements to the best available standards at the scale required. Sizes and locations of equipment are shown to scale where possible, but may be distorted for clarity on the Drawings. Final locations of outlets and equipment shall be as shown in enlarged details and as approved by the Architect or his representative.

B. Single line diagrams, riser diagrams, and schematic diagrams generally indicate equipment connections to be used for various systems. System conduit and wiring shall be as required for actual systems installed on this project. Provide all work shown on diagrams whether or not it is duplicated on the plans.

C. Where the word "provide" is used, the meaning shall be that the item or product shall be furnished, delivered, and installed/erected/ applied/connected for its intended use and as required for the completed Work. Furnish means to supply and deliver to project site, ready for installation. Install means to place in position for service or use.

1.4 SCOPE OF WORK

A. The Specifications and the accompanying Drawings are intended to secure the provision of all material, labor, equipment, and services necessary to install complete, test, and make ready for operation the electrical systems in accordance with the specifications and drawings. All systems shall be complete with necessary auxiliaries, including pull boxes, offsets to clear interferences, and supports, which are not shown but are needed to make each system complete. All work described in the specifications and not shown on the Drawings, or vice versa, shall be furnished in complete working order, including items not

mentioned but necessary for completion of the system. Contractor shall provide the most comprehensive and costly alternative, should there be a conflict in the drawings and/or specifications.

B. The work includes but is not limited to the following:

1. Raceways and installation components.
2. Wires and Cable.
3. Panelboards, circuit breakers.
4. Safety and disconnect switches.
5. Control equipment.
6. Control wiring system.
7. Grounding.
8. Telecommunications (voice and data) wiring and conduit systems.
9. Fire Alarm system.
10. Testing. (100%)
11. Furnishing and setting of all sleeves through the walls where required, including fireproof sealing.
12. Cutting, drilling and boring associated with electrical work, repair, patch and paint.
13. Prime painting, where required for electrical equipment and installation.
14. Restoration of electrical service in affected adjoining areas which are to continue to function.
15. Provisions for temporary light and power for all power connections.
16. Final connections of all equipment.

C. Related Work:

1. Section 017419 – Construction and Demolition Waste Management Disposal.

1.5 QUALITY ASSURANCE

A. The complete installation shall be in accordance with the applicable requirements and standards of National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA), local inspection agency, along with state and local municipal codes and all applicable codes and authorities having jurisdiction. All work necessary to comply with these requirements shall be performed by the Contractor at no extra cost to the Owner.

B. All electrical equipment, materials, and appliances shall have the listing of Underwriter's Laboratories, Inc., and shall bear labels attesting to UL listing.

1.6 SUBMITTALS

A. The Contractor shall submit shop drawings with such promptness as to cause no delay in his own work or that of another contractor.

B. Submit shop drawings complete in every detail for items as described in subsequent sections of this specification.

C. The comments "Approved" or "approved as Noted" rendered on shop drawings shall not be considered as a guarantee of measurements or building conditions. Where drawings are reviewed, said review does not in any way relieve responsibility, or necessity, of furnishing material or performing work as required by the Contract Drawings and Specifications.

D. "Approved as Noted" means, unless otherwise noted on the drawings to approved for construction, fabrication and/or manufacture subject the provision that the work shall be carried out in compliance with all annotations and/or corrections indicated on the shop drawings and in accordance with the requirements of the Contract Documents. Resubmission is required only if the Contractor is unable to comply with noted corrections. Resubmission must clearly indicate items varying from the noted corrections and other changes made from the previous submission. If also marked "RESUBMIT", "Approved as Noted" is invalid and a corrected submittal of the drawing is required.

1.7 COORDINATION OF WORK WITH OTHER TRADES

A. The work of this Section shall be coordinated with the work of all other trades and shall be so arranged that there will be no delay in the proper installation and completion of all work.

B. Scaled and figured dimensions with respect to the items are approximate only; sizes of equipment have been taken from typical equipment items of the class indicated. Before proceeding with work, the Contractor shall carefully check all dimensions and sizes and shall assume full responsibility for the fitting-in of equipment and materials to the building and to meet architectural and structural conditions.

C. Coordinate work with other disciplines. Confer with other contractors whose work might affect this installation; and arrange all parts of this work and equipment in proper relation to the work and equipment of others, with the building construction and with architectural finish so that this work will harmonize in service, appearance, and function.

D. Examine all work prepared by others to receive the work of this Section and report any defects affecting installation to the General Contractor for correction. Commencement of work will be constructed as complete acceptance of preparatory work by others.

E. Exposed piping shall be installed to provide the maximum amount of headroom but in no case shall piping be installed less than seven feet six inches clear (7'-6") above the finished floor. Piping installed in areas where hung ceilings or other furred spaces are indicated shall be installed concealed.

F. Verify locations of all electrical equipment with the Drawings and interior details and finishes. In centering outlets and locating boxes and outlets, allow for overhead pipes, ducts, trim, paneling, hung ceilings and the like and correct any inaccuracy resulting from failure to do so without expense to Owner.

G. The Contractor shall coordinate all ceiling work with the General Contractor and shall determine ceiling type prior to the purchasing and installation of speakers, smoke detectors, exit lights or any other ceiling mounted electrical elements. Electrical work shall also be coordinated with location of diffusers, sprinklers and other mechanical work.

H. Coordination Drawings: The Electrical contractor shall develop the coordination drawings. The specified order in which the trade contractors impose their work on the coordination drawings is not intended to grant priority to any one trade contractor in the allocation of space. At the completion of this phase, hold a coordination meeting to eliminate any interference among the trades that the drawings indicate and to avoid any conflicts in installing the Work.

1. 9 INSPECTION AND TESTS

A. At the time of the final inspection and tests, all connections at the panels and all splices, etc., must have been completed. All fuses must be in place and the circuits continuous from service switches to all receptacles, outlets, motors, etc. Each entire wiring system must test free from short circuits and grounds. When wiring systems are "Megger" tested, the insulation resistance between conductors and between conductors and grounds, based on maximum load, shall not be less than that required by the NETA-ATS and local authorities having jurisdiction. A written record (five copies) of all test data shall be supplied to the Architect. Perform all tests as stated in the NETA-ATS. The tests shall cover but not be limited to the following:

1. Power distribution system.

2. Fire alarm and smoke detection systems.

3. All low voltage and communications systems.

B. Provide all necessary testing equipment, instruments, and skilled personnel for the tests. If in the opinion of the Architect, the results of such tests show that the work has not complied with the requirements of the specifications or drawings, the Contractor shall make all additions or changes necessary to put the system in proper working condition and shall pay for all expenses and for all subsequent tests which are necessary to determine whether the work is satisfactory. Any additional work or subsequent tests shall be carried out at the convenience of the Owner prior to final payment.

1.10 PERMITS, CERTIFICATES AND FEES

A. Obtain and deliver a final Certificate of Approval from the applicable inspection authority having jurisdiction. Make delivery to the Architect for transmittal to the Owner upon completion of the work and before final payment. Pay all charges made by the inspection authority and include their cost in the bid.

B. This work shall include the procurement of and payment for all permits, certificates and fees for the performance of the electrical work in compliance with codes, applicable laws and municipal regulations including those from local utilities for services.

1.11 PROTECTION, MAINTENANCE AND PRODUCT HANDLING OF ELECTRICAL EQUIPMENT

A. Electrical equipment shall be delivered and stored at the site, properly packed and crated until finally installed. Store materials in spaces as designated. Investigate each space through which equipment must be moved. If necessary, equipment shall be shipped from manufacturer in crated sections of size suitable for moving through restricted spaces.

B. Provide effective protection against damage for all material and equipment during shipment and storage at the project site. Cover all stored equipment to exclude dust and moisture. Place stored conduit on dunnage with caps on exposed ends.

C. Uninstalled equipment and materials shall be adequately protected against loss or theft; damage caused by water, paint, fire, plaster, moisture, acids, fumes, dust or other environmental conditions; or physical damage; during delivery, storage, installation and shutdown conditions. The Contractor shall replace any damaged or stolen material without extra cost to the Owner.

D. Provide effective protection for all material and equipment against damage that may be caused by environmental conditions. Do no work when conditions or temperature in area or moisture on materials or substrates are not in accordance with material manufacturer's recommend conditions for installation.

E. This Contractor shall be responsible for the maintenance of all installed equipment and systems until final acceptance by the Architect and the Owner. The operation of the equipment by the Owner does not constitute an acceptance of the work. Work will be accepted only after the Contractor has adjusted his equipment, demonstrated that it fulfills the requirements of the drawings and specifications, and has furnished all required certificates.

F. This Contractor shall guarantee in writing to the Owner that all work installed by him shall be free of defects in workmanship and materials and that all apparatus will develop the capacities and characteristics as indicated, and that, if during a period of one year from date of final approval of work by the Architect, any defects in workmanship, materials or performance appear, he will remedy them without any cost to the Owner. Guarantee requirements shall consist of the afore-stated and other requirements, as established under applicable contract documents.

G. After cabinets and boxes are installed, cover openings to prevent entrance of water and foreign materials. Close conduit openings with temporary metal or plastic caps, including those terminated in cabinets.

H. Protect all rough and finished floors and other finished surfaces from damage, which may be caused by construction materials and methods with tarpaulins, chip pans and oil-proof floor covering. Protect finished surfaces from welding and cutting splatters with baffles and splatter blankets. Protect finished surfaces from paint droppings, adhesive and other marring agents with drop cloths. Protect other surfaces with appropriate protective measures.

I. Have materials delivered to site. Unload and store materials in designated location, and protect from damage. Deliver materials to their point of installation.

J. Deliver materials to project site in manufacturer's original unopened containers with manufacturer's name and product identification clearly marked thereon.

1.12 DELIVERY AND RECEIVING

A. Where items cannot be immediately placed in their final position, this Contractor shall store and protect all Owner-furnished items until the time of their final installation. He shall be responsible for the care and protection of the items until acceptance by the Owner.

1.13 ACCESSIBILITY AND MEASUREMENTS

A. All work shall be installed so as to be readily accessible for operation, maintenance and repair. Minor deviations from the plans may be made to accomplish this, subject to the approval of the Architect.

B. Before ordering any material or doing any work, the Contractor shall verify all measurements at the Building, and shall be responsible for the correctness of same as related to the work under this Contract.

1.14 TEMPORARY LIGHT AND POWER

A. Contractor shall use the existing switchboard and provide temporary breakers to obtain the the temporary lighting and power during construction.

B. The Contractor shall furnish, install and maintain the temporary lighting and power system for all trades. Provide temporary power as directed. The use of electricity shall be kept to a minimum.

C. If other contractors require overtime to complete their work, the General Contractor shall require payment for his standby labor as necessary.

D. Provide all wiring, supports, lamp sockets, receptacle sockets and any other materials, supplies or equipment necessary for temporary light and power system.

E. Ground fault protection required by OSHA for temporary receptacle circuits shall be accomplished by providing branch circuit panels containing ground fault protection circuit breakers or ground fault protection type receptacles.

F. Provide a grounding conductor connection to each receptacle-grounding terminal. Minimum size branch circuit and grounding conductors shall be No. 10 AWG.

1.15 IDENTIFICATION NAMEPLATES

A. Identify and mark all electrical equipment to meet OSHA standards and as specified herein.

B. Furnish a nameplate for each separately installed feeder switch and circuit breaker, each individual panel, dry-type transformer; disconnect switch, push-button station, controller, manual motor starter, and equipment enclosure.

C. Unless otherwise noted, nameplates shall be black laminate with white letters of uniform size consisting of reasonably large capital letters, 3/16" minimum.

D. Inscription shall consist of name and number of equipment as shown on the Drawings and as approved by the Architect.

1.16 NAMES AND TRADE NAMES

A. Where trade and manufacturers' names are specified or indicated on the drawings, they are intended to indicate the standard of material or articles required. This shall not remove the responsibility of the Contractor from verifying the equipment's compliance with all rules and regulations governing the use of such equipment. No purchase of any equipment shall be done without written authorization if such equipment will not abide with all rules and regulations covering its intended use.

1.17 MATERIAL AND WORKMANSHIP

A. All material shall be new and of the best quality and shall have the Underwriters Laboratories label attached. The Label shall be of the type for the intended application. The work throughout shall be executed in the best and most thorough manner under the direction of, and to the satisfaction of the Architect, who will interpret the meaning of the drawings and specifications. The Architect shall have the power to reject any work or material, which, in his opinion, is not in full accordance therewith.

B. If, after installation, operation of the equipment proves to be unsatisfactory to the Owner by reason of defects, errors or omissions, the Owner reserves the right to operate equipment until it can be removed from service for correction by Contractor. Contractor shall pay for damages to work of other trades caused by this defective equipment and its replacement.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 260511

SECTION 260519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Building wires and cables rated 2000 V and less.
2. Wires and cables for PV systems rated 2000 V and less.
3. Connectors, splices, and terminations rated 2000 V and less.

B. Related Work:

Section 017419 – Construction and Demolition Waste Management Disposal.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Product Schedule: Indicate type, use, location, and termination locations.

C. Sustainable Design Submittals:

1. Product Data: For solvents and adhesives, indicating VOC content.
Laboratory Test Reports: For solvents and adhesives, indicating compliance with requirements for low-emitting materials.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA.

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. General Cable Technologies Corporation.
2. Service Wire Co.
3. Southwire Company.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

D. Comply with UL 1277, UL 1685, and NFPA 70 for Type TC-ER cable used in VFC circuits.

E. Conductors: Copper, complying with NEMA WC 70/ICEA S-95-658.
1. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN/THWN-
2. PV Conductor Insulation: Comply with UL 4703.

2.2 CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. O-Z/Gedney; a brand of Emerson Industrial Automation.
2. Thomas & Betts Corporation; A Member of the ABB Group.
3. Southwire

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway.

B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN/THWN-2, single conductors in raceway.

C. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway.

D. Feeders Installed below Raised Flooring: Type THHN/THWN-2, single conductors in raceway.

E. Exposed Branch Circuits: Type THHN/THWN-2, single conductors in raceway.

F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway or Metal-clad cable, Type MC. MC cable shall not be allowed for homeruns back to the panel.

G. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway.

H. Branch Circuits Installed Below Raised Flooring: Type THHN/THWN-2, single conductors in raceway or Metal-clad cable, Type MC. MC cable shall not be allowed for homeruns back to the panel.

I. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

3.8 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test conductors feeding the following services for compliance with requirements.

    a. All distribution board feeders.

2. Perform all applicable tests from NETA ATS.

3. Perform each of the following visual and electrical tests:

    a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
    b. Test bolted connections for high resistance using one of the following:

        1) A low-resistance ohmmeter.
        2) Calibrated torque wrench.
        3) Thermographic survey.

    c. Inspect compression applied connectors for correct cable match and indentation.
    d. Inspect for correct identification.
    e. Inspect cable jacket and condition.
    f. Insulation-resistance test on each conductor with respect to ground and adjacent conductors. Apply a potential of 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable for a one-minute duration.
    g. Continuity test on each conductor and cable.
    h. Uniform resistance of parallel conductors.

4. Initial Infrared Scanning: After Substantial Completion, but before Final Acceptance, perform an infrared scanning for each panelboard and splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.

    a. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
    b. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

5. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switch and panelboard 11 months after date of Substantial Completion.

C. Cables will be considered defective if they do not pass tests and inspections.

D. Prepare test and inspection reports to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

END OF SECTION 260519

SECTION 260526

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes grounding and bonding systems and equipment.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 INFORMATIONAL SUBMITTALS

A. As-Built Data: Plans showing dimensioned as-built locations of grounding features specified in "Field Quality Control" Article, including the following:

1. Ground rods.
2. Grounding arrangements and connections for separately derived systems.

B. Qualification Data: For testing agency and testing agency's field supervisor.

C. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

a. Instructions for periodic testing and inspection of grounding features at test wells and grounding connections for separately derived systems based on NFPA 70B.

1) Tests shall determine if ground-resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if values do not.
2) Include recommended testing intervals.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. ERICO International Corporation.
2. Harger Lightning & Grounding.
3. O-Z/Gedney; a brand of Emerson Industrial Automation.
4. Thomas & Betts Corporation; A Member of the ABB Group.

2.2 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.3 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 4 inches in cross section, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V.

2.4 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.
2. Duct-Bank Grounding Conductor: Bury 12 inches above duct bank when indicated as part of duct-bank installation.

C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

D. Grounding Bus: Install in electrical equipment rooms, in rooms housing service equipment, and elsewhere as indicated.

1. Install bus horizontally, on insulated spacers 2 inches minimum from wall, 6 inches above finished floor unless otherwise indicated.
2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down; connect to horizontal bus.

E. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Structural Steel: Welded connectors.

3.2 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.
7. Armored and metal-clad cable runs.
8. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
9. X-Ray Equipment Circuits: Install insulated equipment grounding conductor in circuits supplying x-ray equipment.

C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

D. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.

E. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service unless otherwise indicated.

F. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply circuit raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate insulated equipment grounding conductor. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service unless otherwise indicated.

G. Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

H. Metallic Fences: Comply with requirements of IEEE C2.

1. Grounding Conductor: Bare copper, not less than No. 8 AWG.
2. Gates: Shall be bonded to the grounding conductor with a flexible bonding jumper.
3. Barbed Wire: Strands shall be bonded to the grounding conductor.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

C. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

D. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install tinned bonding jumper to bond across flexible duct connections to achieve continuity.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

D. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, at ground test wells, or at individual ground rods. Make tests at ground rods before any conductors are connected.

    a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    b. Perform tests by fall-of-potential method according to IEEE 81.

4. Prepare dimensioned Drawings locating each test well, ground rod and ground-rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

E. Grounding system will be considered defective if it does not pass tests and inspections.

F. Prepare test and inspection reports.

G. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.
2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 ohms.
3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
4. Power Distribution Units or Panelboards Serving Electronic Equipment: 3 ohm(s).
5. Manhole Grounds: 10 ohms.

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H. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 260529

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

B. Related Work:

1. Section 017419 – Construction and Demolition Waste Management Disposal.

1.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:

a. Hangers.
b. Steel slotted support systems.
c. Nonmetallic support systems.
d. Trapeze hangers.
e. Clamps.
f. Turnbuckles.
g. Sockets.
h. Eye nuts.
i. Saddles.
j. Brackets.

2. Include rated capacities and furnished specialties and accessories.
3. Trapeze hangers. Include product data for components.
4. Steel slotted-channel systems.
5. Nonmetallic slotted-channel systems.
6. Equipment supports.
7. Vibration Isolation Base Details: Detail fabrication, including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Suspended ceiling components.
2. Structural members to which hangers and supports will be attached.
3. Size and location of initial access modules for acoustical tile.
4. Items penetrating finished ceiling, including the following:

a. Lighting fixtures.
b. Air outlets and inlets.
c. Speakers.
d. Sprinklers.
e. Access panels.
f. Projectors.

B. Welding certificates.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M.
2. AWS D1.2/D1.2M.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame Rating: Class 1.
2. Self-extinguishing according to ASTM D 635.

2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4 factory-fabricated components for field assembly.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Allied Tube & Conduit; a part of Atkore International.
b. B-line, an Eaton business.
c. Thomas & Betts Corporation; A Member of the ABB Group.
d. Unistrut; Part of Atkore International.

2. Material: Galvanized steel.

3. Channel Width: 1-5/8 inches.
4. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
5. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.

6. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
7. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
8. Channel Dimensions: Selected for applicable load criteria.

B. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

C. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for nonarmored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be made of malleable iron.

D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M steel plates, shapes, and bars; black and galvanized.

E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

    a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

        1) Hilti, Inc.
        2) Simpson Strong-Tie Co., Inc.

2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

    a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

        1) B-line, an Eaton business.
        2) Hilti, Inc.

3. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.

4. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.3 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems unless requirements in this Section are stricter.

B. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."

C. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMTs, IMCs, and RMCs as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

D. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with two-bolt conduit clamps.

E. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMTs and RMCs may be supported by openings through structure members, according to NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
6. To Steel: Beam clamps (MSS SP-58, Type 19, 21, 23, 25, or 27), complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that comply with seismic-restraint strength and anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Section 033000 "Cast-in-Place Concrete." Anchor equipment to concrete base as follows:

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Touchup: Comply with requirements in Section 099123 "Interior Painting" and Section 099600 "High-Performance Coatings" for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

SECTION 260533

RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Surface raceways.
6. Boxes, enclosures, and cabinets.
7. Handholes and boxes for exterior underground cabling.

B. Related Work:

1. Section 017419 – Construction and Demolition Waste Management Disposal.
2. Section 018113 – Sustainable Design Requirements.
3. Section 018119 – Construction Indoor Air Quality Requirements.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 DEFINITIONS

A. GRC: Galvanized rigid steel conduit.

1.4 ACTION SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Sustainable Design Submittals:

1. Product Data: For solvents and adhesives, indicating VOC content.
2. Laboratory Test Reports: For solvents and adhesives, indicating compliance with requirements for low-emitting materials.

C. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

D. Samples: For wireways and surface raceways and for each color and texture specified, 12 inches long.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of items involved:

1. Structural members in paths of conduit groups with common supports.
2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.

B. Source quality-control reports.

PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Allied Tube & Conduit; a part of Atkore International.
2. FSR Inc.
3. O-Z/Gedney; a brand of Emerson Industrial Automation.
4. Republic Conduit.
5. Thomas & Betts Corporation; A Member of the ABB Group.

B. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. GRC: Comply with ANSI C80.1 and UL 6.

D. EMT: Comply with ANSI C80.3 and UL 797.

E. FMC: Comply with UL 1; zinc-coated steel.

F. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

G. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886 and NFPA 70.
2. Fittings for EMT:

a. Material: Steel.
b. Type: Setscrew or compression.

3. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
4. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch, with overlapping sleeves protecting threaded joints.

H. Joint Compound for GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Allied Tube & Conduit; a part of Atkore International.
2. AFC Cable Systems; a part of Atkore International.

3. Thomas & Betts Corporation; A Member of the ABB Group.

B. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. LFNC: Comply with UL 1660.

D. Coilable HDPE: Preassembled with conductors or cables, and complying with ASTM D 3485.

E. RTRC: Comply with UL 1684A and NEMA TC 14.

F. Fittings for LFNC: Comply with UL 514B.

G. Solvents and Adhesives: As recommended by conduit manufacturer.

1. Low VOC Content for PVC conduit and fittings. Coordinate with the project's VOC reporting form for maximum acceptable g/L value.
2. Low-Emitting Material Requirements: As recommended by solvent and adhesive manufacturer and that complies with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. B-line, an Eaton business.
2. MonoSystems, Inc.
3. Wiremold / Legrand.

B. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

D. Wireway Covers: Hinged type unless otherwise indicated.

E. Finish: Manufacturer's standard enamel finish.

2.4 SURFACE RACEWAYS

A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5. Manufacturer's standard enamel finish in color selected by Architect.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. MonoSystems, Inc.
b. Panduit Corp.
c. Wiremold / Legrand.

C. Surface Nonmetallic Raceways: Two- or three-piece construction, complying with UL 5A, and manufactured of rigid PVC with texture and color selected by Architect from manufacturer's standard colors. Product shall comply with UL 94 V-0 requirements for self-extinguishing characteristics.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. MonoSystems, Inc.
b. Panduit Corp.
c. Wiremold / Legrand.

2.5 BOXES, ENCLOSURES, AND CABINETS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Erickson Electrical Equipment Company.
2. FSR Inc.
3. O-Z/Gedney; a brand of Emerson Industrial Automation.
4. Thomas & Betts Corporation; A Member of the ABB Group.
5. Wiremold / Legrand.

B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

C. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

D. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, aluminum, Type FD, with gasketed cover.

E. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.

F. Metal Floor Boxes:

1. Material: sheet metal.
2. Type: Fully adjustable or Semi-adjustable.
3. Shape: Rectangular.
4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

G. Nonmetallic Floor Boxes: Nonadjustable, round or rectangular, as note on plans.

1. Listing and Labeling: Nonmetallic floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

H. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

I. Paddle Fan Outlet Boxes: Nonadjustable, designed for attachment of paddle fan weighing 70 lb.

1. Listing and Labeling: Paddle fan outlet boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

J. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

K. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, galvanized, cast iron with gasketed cover.

L. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

M. Device Box Dimensions: 4 inches by 2-1/8 inches by 2-1/8 inches deep.

N. Gangable boxes are allowed.

O. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 for indoor and Type 3R for outdoor with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Nonmetallic Enclosures: Fiberglass.
3. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

P. Cabinets:

1. NEMA 250, Type 1 for indoor and Type 3R for outdoor, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.
6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.6 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

A. General Requirements for Handholes and Boxes:

1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Fiberglass Handholes and Boxes: Molded of fiberglass-reinforced polyester resin, with frame and covers of fiberglass.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Nordic Fiberglass, Inc.
b. Quazite: Hubbell Power Systems, Inc.

2. Standard: Comply with SCTE 77.
3. Configuration: Designed for flush burial with open bottom unless otherwise indicated.
4. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
5. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
6. Cover Legend: Molded lettering, "ELECTRIC".
7. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
8. Handholes 12 Inches Wide by 24 Inches Long and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.7 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.

2. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012 and traceable to NIST standards.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Indoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed and Subject to Severe Physical Damage: GRC. Raceway locations include but are not limited to the following:

    a. Loading dock.
    b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
    c. Mechanical rooms.

3. Concealed in Ceilings and Interior Walls and Partitions: EMT.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
5. Damp or Wet Locations: GRC.
6. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.

B. Minimum Raceway Size: 3/4-inch trade size.

C. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
3. EMT: Use setscrew or compression, steel fittings. Comply with NEMA FB 2.10.
4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

D. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

E. Arrange stub-ups so curved portions of bends are not visible above finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

G. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

H. Support conduit within 12 inches of enclosures to which attached.

I. Raceways Embedded in Slabs:

1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support. Secure raceways to reinforcement at maximum 10-foot intervals.
2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
3. Arrange raceways to keep a minimum of 2 inches of concrete cover in all directions.
4. Do not embed threadless fittings in concrete unless specifically approved by Architect for each specific location.

J. Stub-ups to Above Recessed Ceilings:

1. Use EMT or RMC for raceways.
2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.

K. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

L. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.

M. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

N. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

O. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

P. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

Q. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

R. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

S. Surface Raceways:

1. Install surface raceway with a minimum 2-inch radius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

T. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.

U. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

V. Comply with manufacturer's written instructions for solvent welding RNC and fittings.

W. Expansion-Joint Fittings:

1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F and that has straight-run length that exceeds 25 feet Install in each run of aboveground RMC and EMT conduit that is located where environmental temperature change may exceed 100 deg F and that has straight-run length that exceeds 100 feet.
2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:

    a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
    b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
    c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.

3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F of temperature change for metal conduits.
4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.

X. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

Y. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.

Z. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.

AA. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

BB. Locate boxes so that cover or plate will not span different building finishes.

CC. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

DD. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

EE. Set metal floor boxes level and flush with finished floor surface.

FF. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.3 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.4 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.5 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 260544

SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sleeves for raceway and cable penetration of non-fire-rated construction walls and floors.
2. Sleeve-seal systems.
3. Sleeve-seal fittings.
4. Grout.
5. Silicone sealants.

B. Related Requirements:

1. Section 078413 "Penetration Firestopping" for penetration firestopping installed in fire-resistance-rated walls, horizontal assemblies, and smoke barriers, with and without penetrating items.

C. Related Work:

1. Section 017419 – Construction and Demolition Waste Management Disposal.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Sustainable Design Submittals:

1. Product Data: For paints and coatings, indicating VOC content.
2. Laboratory Test Reports: For paints and coatings, indicating compliance with requirements for low-emitting materials.

PART 2 - PRODUCTS

2.1 SLEEVES

A. Wall Sleeves:

1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.

B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

C. Molded-PE or -PP Sleeves: Removable, tapered-cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.

D. Sleeves for Rectangular Openings:

1. Material: Galvanized sheet steel.
2. Minimum Metal Thickness:

a. For sleeve cross-section rectangle perimeter less than 50 inches and with no side larger than 16 inches, thickness shall be 0.052 inch.
b. For sleeve cross-section rectangle perimeter 50 inches or more and one or more sides larger than 16 inches, thickness shall be 0.138 inch.

E. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Johnson Bros. Roll Forming Co.
b. Swagelok Company
c. MOCAP LLC

2.2 SLEEVE-SEAL SYSTEMS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Advance Products & Systems, Inc.
b. Metraflex Company (The).
c. Pipeline Seal and Insulator, Inc.

2. Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
3. Pressure Plates: Stainless steel.
4. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements.

2.3 SLEEVE-SEAL FITTINGS

A. Description: Manufactured plastic, sleeve-type, waterstop assembly made for embedding in concrete slab or wall. Unit shall have plastic or rubber waterstop collar with center opening to match piping OD.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. HOLDRITE.
b. Presealed Systems.
c. Morris Coupling Co.

2.4 GROUT

A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. Copps Industries, Inc..
b. Key Resin Co.
c. Wyo-Ben, Inc.

B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

2.5 SILICONE SEALANTS

A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.
2. Sealant shall have a low VOC content. Coordinate with the project's VOC reporting form for maximum acceptable g/L value.
3. Sealant shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. Anti-Seize Technology, A.S.T. Industries, Inc.
b. Ellsworth Adhesives
c. Everkem Diversified Products

C. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

A. Comply with NECA 1.

B. Comply with NEMA VE 2 for cable tray and cable penetrations.

C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:

1. Interior Penetrations of Non-Fire-Rated Walls and Floors:

a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Section 079200 "Joint Sealants."
b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.

2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed or unless seismic criteria require different clearance.
4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.
5. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches above finished floor level. Install sleeves during erection of floors.

D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:

1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

E. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

F. Aboveground, Exterior-Wall Penetrations: Seal penetrations using cast-iron pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

G. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

3.2 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.

B. Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.3 SLEEVE-SEAL-FITTING INSTALLATION

A. Install sleeve-seal fittings in new walls and slabs as they are constructed.

B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

C. Secure nailing flanges to concrete forms.

D. Using grout, seal the space around outside of sleeve-seal fittings.

END OF SECTION 260544

SECTION 260553

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes identification of electrical materials, equipment, and installations. It includes requirements for electrical identification components including but not limited to the following:

1. Buried electrical line warnings.

2. Identification labeling for raceways, cables, and conductors.

3. Operational instruction signs.

4. Warning and caution signs.

5. Equipment labels and signs.

B. Refer to other Division 26 sections for additional specific electrical identification associated with specific items.

C. Related Work:

1. Section 017419 – Construction and Demolition Waste Management Disposal.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 SUBMITTALS

A. Product Data for each type of product specified.

B. Samples of each color, lettering style, and other graphic representation required for identification materials; samples of labels and signs.

1.4 QUALITY ASSURANCE

A. Electrical Component Standard: Components and installation shall comply with NFPA 70 "National Electrical Code."

B. ANSI Compliance: Comply with requirements of ANSI Standard A13.1, "Scheme for the Identification of Piping Systems," with regard to type and size of lettering for raceway and cable labels.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

1. American Label mark Co.
2. Ideal Industries, Inc.
3. Panduit Corp.
4. Seton Name Plate Co.
5. Standard Signs, Inc.
6. W.H.Brady, Co.

2.2 ELECTRICAL IDENTIFICATION PRODUCTS

A. Adhesive Marking Labels for Raceway; Pre- printed, flexible, self-adhesive labels with legend indicating voltage and service.

B. Label Size: as follows:

1. Raceways Larger than 1-Inch: 1-1/8 inches high by 8 inches long.

C. Color: Black legend on orange background.

D. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tapes not less than 3 mils thick by 1 inch to 2 inches in width.

E. Pre-tensioned Flexible Wraparound Colored Plastic Sleeves for Raceway and Cable Identification: Flexible acrylic bands sized to suit the raceway diameter and arranged to stay in place by pre- tensioned gripping action when coiled around the raceway or cable.

F. Underground Line Marking Tape: Permanent, bright-colored, continuous-printed, plastic tape compounded for direct-burial service not less than 6 inches wide by 4 mils thick. Printed legend indicative of general type of underground line below.

G. Wire/Cable Designation Tape Markers: Vinyl or vinyl-cloth, self- adhesive, wraparound, cable/conductor markers with preprinted numbers and letter.

H. Engraved, Plastic-Laminated Labels, Signs, and Instruction Plates: Engraving stock melamine plastic laminate, 1/16-inch minimum thick for signs up to 20 square inches, or 8 inches in length; 1/8-inch thick for larger sizes. Engraved legend in white letters on black face and punched for mechanical fasteners.

I. Baked-Enamel Warning and Caution Signs for Interior Use: Preprinted aluminum signs, punched for fasteners, with colors, legend, and size appropriate to the location.

J. Exterior Metal-Backed Butyrate Warning and Caution Signs: Weather-resistant, non-fading, preprinted cellulose acetate butyrate signs with 20-gage, galvanized steel backing, with colors, legend, and size appropriate to the location. Provide 1/4-inch grommets in corners for mounting.

K. Fasteners for Plastic-Laminated and Metal Signs: Self-tapping stainless steel screws or number 10/32 stainless steel machine screws with nuts and flat and lock washers.

L. Cable Ties: Fungus-inert, self-extinguishing, one-piece, self- locking nylon cable ties, 0.18-inch minimum width, 50-lb minimum tensile strength, and suitable for a temperature range from minus 50 deg F to 350 deg F. Provide ties in specified colors when used for color-coding.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Lettering and Graphics: Coordinate names, abbreviations, colors, and other designations used in electrical identification work with corresponding designations specified or indicated. Install numbers, lettering, and colors as approved in submittals and as required by code.

B. Install identification devices in accordance with manufacturer's written instructions and requirements of NEC.

C. Sequence of Work: Where identification is to be applied to surfaces that require finish, install identification after completion of finish work.

3.2 CONDUIT IDENTIFICATION:

A. Identify high-voltage feeder conduits (over 600 V) by words "DANGER-HIGH VOLTAGE" in black letters 2 inches high, stenciled at 10-foot intervals over continuous painted orange background.

1. The following areas shall be identified:

i. On entire surface of exposed conduits.

B. Identify Junction, Pull, and Connection Boxes: Code-required caution sign for boxes shall be pressure-sensitive, self-adhesive label indicating system voltage in black, preprinted on orange background. Install on outside of box cover. Also label box covers with identity of contained circuits. Use pressure- sensitive plastic labels at exposed locations and similar labels or plasticized card stock tags at concealed boxes.

C. Underground Electrical Line Identification: During trench backfilling, for exterior underground power, install continuous underground plastic line marker, located directly above line at 6 to 8 inches below finished grade. Where multiple lines installed in a common trench or concrete envelope, do not exceed an overall width of 16 inches; install a single line marker.

D. Conductor Color Coding: Provide color-coding for secondary service, feeder, and branch circuit conductors throughout the project secondary electrical system as follows:

208/120 Volts	Phase	480/277 Volts
Black	A	Brown
Red	B	Orange
Blue	C	Yellow
White	Neutral	Gray
Green	Ground	Green

E. Apply warning, caution, and instruction signs and stencils as follows:

1. Install warning, caution, or instruction signs where required by NEC, where indicated, or where reasonably required to assure safe operation and maintenance of electrical systems and of the items to which they connect. Install engraved plastic- laminated instruction signs with approved legend where instructions or explanations are needed for system or equipment operation. Install butyrate signs with metal backing for outdoor items.

F.Install equipment/system circuit/device identification as follows:

1. Apply equipment identification labels of engraved plastic- laminate on each major unit of electrical equipment and electrical system. Provide single line of text, with 1/2-inch-high lettering on 1-1/2-inch-high label (2-inch-high where two lines are required), white lettering in black field. Text shall match terminology and numbering of the Contract Documents and shop drawings. Apply labels for each unit of the following categories of electrical equipment.

i. Pull and connection boxes.

ii. Access doors and panels for concealed electrical items.

iii. Electrical switchgear and switchboards.

iv. Electrical substations.

G. Install labels at locations indicated and at locations for best convenience of viewing without interference with operation and maintenance of equipment.

END OF SECTION 260553

SECTION 260923

LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Time switches.
2. Photoelectric switches.
3. Standalone daylight-harvesting switching controls.
4. Indoor occupancy sensors.
5. Outdoor motion sensors.
6. Lighting contactors.
7. Emergency shunt relays.

B. Related Requirements:

1. Section 262726 "Wiring Devices" for wall-box dimmers, wall-switch occupancy sensors, and manual light switches.

C. Related Work:

1. Section 017419 – Construction and Demolition Waste Management Disposal.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show installation details for occupancy and light-level sensors.

1. Interconnection diagrams showing field-installed wiring.
2. Include diagrams for power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For each type of lighting control device to include in emergency, operation, and maintenance manuals.

PART 2 - PRODUCTS

2.1 INDOOR OCCUPANCY SENSORS

A. Bryant Electric
Cooper Industries, Inc
Hubbell Building Automation
Intermatic, Inc
Leviton Manufacturing
Lithonia Lighting
Wattstopper

B. General Requirements for Sensors: Wall- or ceiling-mounted, solid-state indoor occupancy sensors with a separate power pack.

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. Operation: Unless otherwise indicated, turn lights on when coverage area is occupied, and turn them off when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
3. Sensor Output: Contacts rated to operate the connected relay, complying with UL 773A. Sensor is powered from the power pack.
4. Power Pack: Dry contacts rated for 20A at 120- and 277-V ac, for 13-A tungsten at 120-V ac, and for 1 hp at 120-V ac. Sensor has 24-V dc, 150-mA, Class 2 power source, as defined by NFPA 70.
5. Mounting:

    a. Sensor: Suitable for mounting in any position on a standard outlet box.
    b. Relay: Externally mounted through a 1/2-inch knockout in a standard electrical enclosure.
    c. Time-Delay and Sensitivity Adjustments: Recessed and concealed behind hinged door.

6. Indicator: Digital display, to show when motion is detected during testing and normal operation of sensor.
7. Bypass Switch: Override the "on" function in case of sensor failure.
8. Automatic Light-Level Sensor: Adjustable from 2 to 200 fc; turn lights off when selected lighting level is present.

C. PIR Type: Ceiling mounted; detect occupants in coverage area by their heat and movement.

1. Detector Sensitivity: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a target of not less than 36 sq. in.
2. Detection Coverage (Room): Detect occupancy anywhere in a circular area of 1000 sq. ft. when mounted on a 96-inch- high ceiling.
3. Detection Coverage (Corridor): Detect occupancy within 90 feet when mounted on a 10-foot- high ceiling.

D. Ultrasonic Type: Ceiling mounted; detect occupants in coverage area through pattern changes of reflected ultrasonic energy.

1. Detector Sensitivity: Detect a person of average size and weight moving not less than 12 inches in either a horizontal or a vertical manner at an approximate speed of 12 inches/s.
2. Detection Coverage (Small Room): Detect occupancy anywhere within a circular area of 600 sq. ft. when mounted on a 96-inch- high ceiling.
3. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft. when mounted on a 96-inch- high ceiling.
4. Detection Coverage (Large Room): Detect occupancy anywhere within a circular area of 2000 sq. ft. when mounted on a 96-inch- high ceiling.
5. Detection Coverage (Corridor): Detect occupancy anywhere within 90 feet when mounted on a 10-foot- high ceiling in a corridor not wider than 14 feet.

6. Dual-Technology Type: Ceiling mounted; detect occupants in coverage area using PIR and ultrasonic detection methods. The particular technology or combination of technologies that control on-off functions is selectable in the field by operating controls on unit.
7. Sensitivity Adjustment: Separate for each sensing technology.
8. Detector Sensitivity: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a target of not less than 36 sq. in., and detect a person of average size and weight moving not less than 12 inches in either a horizontal or a vertical manner at an approximate speed of 12 inches/s.
9. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft. when mounted on a 96-inch- high ceiling.

2.2 SWITCHBOX-MOUNTED OCCUPANCY SENSORS

A. Bryant Electric
Cooper Industries, Inc
Hubbell Building Automation
Intermatic, Inc
Leviton Manufacturing
Lithonia Lighting
Wattstopper

B. General Requirements for Sensors: Automatic-wall-switch occupancy sensor, suitable for mounting in a single gang switchbox.

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. Operating Ambient Conditions: Dry interior conditions, 32 to 120 deg F.
3. Switch Rating: Not less than 800-VA fluorescent at 120 V, 1200-VA fluorescent at 277 V, and 800-W incandescent.

C. Wall-Switch Sensor Tag WS1:

1. Standard Range: 180-degree field of view, field adjustable from 180 to 40 degrees; with a minimum coverage area of 2100 sq. ft.
2. Sensing Technology: Dual technology - PIR and ultrasonic.
3. Switch Type: SP, field selectable automatic "on," or manual "on" automatic "off."
4. Voltage: Dual voltage, 120 and 277 V; dual-technology type.
5. Ambient-Light Override: Concealed, field-adjustable, light-level sensor from 10 to 150 fc. The switch prevents the lights from turning on when the light level is higher than the set point of the sensor.
6. Concealed, field-adjustable, "off" time-delay selector at up to 30 minutes.
7. Concealed "off" time-delay selector at 30 seconds, and 5, 10, and 20 minutes.
   Adaptive Technology: Self-adjusting circuitry detects and memorizes usage patterns of the space and helps eliminate false "off" switching.

2.3 LIGHTING CONTACTORS

A. ABB
ASCO Power Technologies
Eaton
Leviton Manufacturing
Square D

B. Description: Electrically operated and mechanically held, combination-type lighting contactors with nonfused disconnect, complying with NEMA ICS 2 and UL 508.

1. Current Rating for Switching: Listing or rating consistent with type of load served, including tungsten filament, inductive, and high-inrush ballast (ballast with 15 percent or less total harmonic distortion of normal load current).
2. Fault Current Withstand Rating: Equal to or exceeding the available fault current at the point of installation.
3. Enclosure: Comply with NEMA 250.
4. Provide with control and pilot devices as scheduled, matching the NEMA type specified for the enclosure.

C. Interface with DDC System for HVAC: Provide hardware interface to enable the DDC system for HVAC to monitor and control lighting contactors.

1. Monitoring: On-off status.
2. Control: On-off operation.

2.4 EMERGENCY SHUNT RELAY

A. Lighting Control and Design
WattStopper
nLiGHT(Acuity Controls)

B. Description: Normally closed, electrically held relay, arranged for wiring in parallel with manual or automatic switching contacts; complying with UL 924.

1. Coil Rating: 277 V.

2.5 CONDUCTORS AND CABLES

A. Power Wiring to Supply Side of Remote-Control Power Sources: Not smaller than No. 12 AWG. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

B. Classes 2 and 3 Control Cable: Multiconductor cable with stranded-copper conductors not smaller than No. 18 AWG. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

C. Class 1 Control Cable: Multiconductor cable with stranded-copper conductors not smaller than No. 14 AWG. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

PART 3 - EXECUTION

3.1 SENSOR INSTALLATION

A. Coordinate layout and installation of ceiling-mounted devices with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, smoke detectors, fire-suppression systems, and partition assemblies.

B. Install and aim sensors in locations to achieve not less than 90 percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's written instructions.

3.2 CONTACTOR INSTALLATION

A. Mount electrically held lighting contactors with elastomeric isolator pads to eliminate structure-borne vibration, unless contactors are installed in an enclosure with factory-installed vibration isolators.

3.3 WIRING INSTALLATION

A. Wiring Method: Comply with Section 260519 "Low-Voltage Electrical Power Conductors and Cables." Minimum conduit size is 3/4 inch.

B. Wiring within Enclosures: Comply with NECA 1. Separate power-limited and nonpower-limited conductors according to conductor manufacturer's written instructions.

C. Size conductors according to lighting control device manufacturer's written instructions unless otherwise indicated.

D. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

3.4 IDENTIFICATION

A. Identify components and power and control wiring according to Section 260553 "Identification for Electrical Systems."

1. Identify controlled circuits in lighting contactors.
2. Identify circuits or luminaires controlled by photoelectric and occupancy sensors at each sensor.

B. Label time switches and contactors with a unique designation.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to evaluate lighting control devices and perform tests and inspections.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Operational Test: After installing time switches and sensors, and after electrical circuitry has been energized, start units to confirm proper unit operation.
2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Lighting control devices will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports.

3.6 ADJUSTING

A. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting sensors to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose.

1. For occupancy and motion sensors, verify operation at outer limits of detector range. Set time delay to suit Owner's operations.
2. For daylighting controls, adjust set points and deadband controls to suit Owner's operations.
3. Align high-bay occupancy sensors using manufacturer's laser aiming tool.

3.7 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain lighting control devices.

END OF SECTION 260923

SECTION 262726

WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Weather-resistant receptacles.
3. Communications outlets.

B. Related Work:

1. Section 017419 – Construction and Demolition Waste Management Disposal.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 DEFINITIONS

A. EMI: Electromagnetic interference.

B. GFCI: Ground-fault circuit interrupter.

C. Pigtail: Short lead used to connect a device to a branch-circuit conductor.

D. RFI: Radio-frequency interference.

E. UTP: Unshielded twisted pair.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

C. Samples: One for each type of device and wall plate specified, in each color specified.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing-label warnings and instruction manuals that include labeling conditions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton (Arrow Hart).
2. Hubbell Incorporated; Wiring Device-Kellems.
3. Leviton Manufacturing Co., Inc.

B. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton (Arrow Hart).
b. Hubbell Incorporated; Wiring Device-Kellems.
c. Leviton Manufacturing Co., Inc.

B. Tamper Resistant Duplex Convenience Receptacles, 125 V, 20 A, with two USB chargers: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498 Supplement sd, UL1310 and USB BC 1.2 battery charging specifications.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton (Arrow Hart) – Model no. TR7746W
b. Hubbell Incorporated; Wiring Device-Kellems – Model no. USB20X2W
c. Leviton Manufacturing Co., Inc. – Model no. - T5832W

2.4 GFCI RECEPTACLES

A. General Description:

1. Straight blade, feed-through type.
2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton (Arrow Hart).
b. Hubbell Incorporated; Wiring Device-Kellems.
c. Leviton Manufacturing Co., Inc.

2.5 FINISHES

A. Device Color:

1. Wiring Devices Connected to Normal Power System: As selected by Architect unless otherwise indicated or required by NFPA 70 or device listing.
2. Wiring Devices Connected to Emergency Power System: Red.
3. Isolated-Ground Receptacles: Orange.
4. Wiring Devices connected via the UPS System: Blue.

B. Wall Plate Color: For plastic covers, match device color.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.

3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
4. Existing Conductors:

    a. Cut back and pigtail, or replace all damaged conductors.
    b. Straighten conductors that remain and remove corrosion and foreign matter.
    c. Pigtailing existing conductors is permitted, provided the outlet box is large enough.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the left.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Dimmers:

1. Install dimmers within terms of their listing.
2. Verify that dimmers used for fan speed control are listed for that application.
3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

I. Adjust locations of floor service outlets and service poles to suit arrangement of partitions and furnishings.

3.2 GFCI RECEPTACLES

A. Install non-feed-through-type GFCI receptacles where protection of downstream receptacles is not required.

3.3 IDENTIFICATION

A. Comply with Section 260553 "Identification for Electrical Systems."

B. Identify each receptacle with panelboard identification and circuit number. Use hot, stamped, or engraved machine printing with black-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

3.4 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 262726

SECTION 262816

ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Molded-case circuit breakers (MCCBs).

B. Related Work:

1. Section 017419 – Construction and Demolition Waste Management Disposal.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.3 DEFINITIONS

A. NC: Normally closed.

B. NO: Normally open.

C. SPDT: Single pole, double throw.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.
1. Current and voltage ratings.
2. Short-circuit current ratings (interrupting and withstand, as appropriate).
3. Include evidence of NRTL listing for series rating of installed devices.
4. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.

B. Shop Drawings: For enclosed switches and circuit breakers. Include plans, elevations, sections, details, and attachments to other work.

1. Wiring Diagrams: For power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Field quality-control reports.

1. Test procedures used.
2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

C. Manufacturer's field service report.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For enclosed switches and circuit breakers to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

1. Manufacturer's written instructions for testing and adjusting circuit breakers.

1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

B. Source Limitations: Obtain enclosed switches and circuit breakers, overcurrent protective devices, components, and accessories, within same product category, from single source from single manufacturer.

C. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches and circuit breakers, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

E. Comply with NFPA 70.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Rate equipment for continuous operation under the following conditions unless otherwise indicated:

1. Ambient Temperature: Not less than minus 22 deg F and not exceeding 104 deg F.
2. Altitude: Not exceeding 6600 feet.

B. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

1. Notify Architect no fewer than seven days in advance of proposed interruption of electric service.
2. Indicate method of providing temporary electric service.
3. Do not proceed with interruption of electric service without Architect's written permission.
4. Comply with NFPA 70E.

1.9 COORDINATION

A. Coordinate layout and installation of switches, circuit breakers, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

PART 2 - PRODUCTS

2.1 MOLDED-CASE CIRCUIT BREAKERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton.

2. GE
3. Square D; by Schneider Electric.

B. General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents.

C. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

D. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller, and let-through ratings less than NEMA FU 1, RK-5.

E. Features and Accessories:

1. Standard frame sizes, trip ratings, and number of poles.
2. Lugs: Mechanical type, suitable for number, size, trip ratings, and conductor material.
3. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge lighting circuits.

2.2 MOLDED-CASE SWITCHES

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.

B. Comply with mounting and anchoring requirements specified in Section 260548.16 "Seismic Controls for Electrical Systems."

C. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.

D. Install fuses in fusible devices.

E. Comply with NECA 1.

3.3 IDENTIFICATION

A. Comply with requirements in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
3. Perform the following infrared scan tests and inspections and prepare reports:

a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each enclosed switch and circuit breaker. Remove front panels so joints and connections are accessible to portable scanner.
b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each enclosed switch and circuit breaker 11 months after date of Substantial Completion.
c. Instruments and Equipment: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

4. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.

END OF SECTION 262816

SECTION 263323.11 - CENTRAL BATTERY EQUIPMENT FOR EMERGENCY LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes the following central battery and power conversion equipment rated 600 V and less for emergency lighting:

1. Interruptible (slow - transfer) central battery equipment.

1.3 DEFINITIONS

A. DDC: Direct digital control.

B. IBC: International Building Code.

C. Interruptible: As used in the Section Text, an off-line, passive-standby or line-interactive, inverter-only unit, with an intentional interruption of power to the load until an internal transfer switch picks up and transfers the load to the unit's inverter and internal battery source on loss of the "normal" source, and then retransfers to the "normal" source when it is restored. Transfer time can be "slow" (up to approximately 1 second) or "fast" (2-4 ms or 40-50 ms, depending on manufacturer).

D. LED: Light-emitting diode.

E. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control, signaling power-limited circuits.

F. NiCd: Nickel cadmium.

G. OCPD: Overcurrent protective device.

H. PC: Personal computer.

I. PWM: Pulse-width modulated.

J. TDD: Total demand (harmonic current) distortion (also listed as "THD" in catalog data by manufacturers).

K. THD(V): Total harmonic voltage demand.

L. Uninterruptible: As used in the Section Text, an on-line, double-conversion (rectifier/inverter) unit, with no interruption of power to the load on interruption and restoration of the "normal" source.

M. UPS: Uninterruptible power supply.

N. VRLA: Valve-regulated lead acid.

1.4 ACTION SUBMITTALS

A. Product Data: For each type and rating of central battery equipment unit.

1. Include features, performance, electrical ratings, operating characteristics, shipping and operating weights, shipping splits, and furnished options, specialties, and accessories.

B. Shop Drawings: For each type and rating of central battery equipment unit.

1. Include plans, elevations, sections, and mounting details.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, ventilation requirements, method of field assembly, components, and location and size of each field connection.
3. Include system one-line diagram, internal and interconnecting wiring; and diagrams for power, signal, and control wiring.
4. Include elevation, details, and legends of control and indication displays.
5. Include -circuit current (withstand) rating of unit.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Floor plans, drawn to scale, showing dimensioned layout, required working clearances, and required area above and around central battery equipment. Show central battery equipment layout and relationships between electrical components and adjacent structural and mechanical elements. Show support locations, type of support, and weight on each support. Indicate field measurements.

B. Qualification Data: For Installer and testing agency.

C. Product Certificates: For each type of central battery equipment.

D. Source quality-control reports.

E. Field quality-control reports.

F. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For central battery equipment to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

    a. Manufacturer's written instructions for testing central battery equipment.
    b. Manufacturer's written instructions for testing, adjusting, and reprogramming microprocessor control modules.
    c. Manufacturer's written instructions for selecting and setting field-adjustable controls and status and alarm points

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Deliver extra materials to Owner.

1. Fuses: One for every 10 of each type and rating, but no fewer than of each type.
2. Output Circuit Breakers: One for every 10 of each type and rating, but no fewer than each type.
3. Output Circuit Breaker Open/Tripped Alarm Contacts: One for every 10 supplied, but no fewer than of each type.
4. Cabinet Ventilation Filters: One complete set.
5. Circuit Board: One spare circuit board for each critical circuit.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. Testing Agency Qualifications: Member company of NETA or an NRTL

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver equipment in fully enclosed vehicles.

B. Store equipment in spaces having environments controlled within manufacturers' written instructions for ambient temperature and humidity conditions for non-operating equipment.

1.10 FIELD CONDITIONS

A. Environmental Limitations: Rate equipment for continuous operation under the following conditions unless otherwise indicated:

1. Ambient Temperature: Less than 0 deg F or exceeding 104 deg F with an average value exceeding 95 deg F over a 24-hour period.
2. Ambient Storage Temperature: Not less than minus 4 deg F and not exceeding 140 deg F.
3. Humidity: More than 95 percent (condensing).

4. Altitude: Exceeding 3300 feet.

B. Interruption of Existing Electrical Distribution Systems: Do not interrupt electrical distribution systems within facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Architect and construction manager no fewer than two days in advance of proposed interruption of electrical systems.
2. Indicate method of providing temporary electrical service.
3. Do not proceed with interruption of electrical systems without Construction Manager's written permission.
4. Comply with NFPA 70E.

C. Product Selection for Restricted Space: Drawings indicate maximum dimensions for central battery equipment, including clearances between central battery equipment and adjacent surfaces and other items.

1.11 COORDINATION

A. Coordinate sizes and locations of concrete bases. Cast anchor-bolt inserts into bases.

1.12 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace central battery equipment that fails in materials or workmanship within specified warranty period. Special warranty, applying to batteries only, applies to materials only, on a prorated basis, for period specified.

1. Warranty Period: Include the following warranty periods, from date of Substantial Completion:

a. Central Battery Equipment (excluding Batteries): One year(s).
b. Standard VRLA Batteries:

1) Full Warranty: One year(s).
2) Pro Rata: Nine years.

c. Premium VRLA Batteries:

1) Full Warranty: One year(s).
2) Pro Rata: **19** years.

d. NiCd, Wet-Cell Batteries:

1) Full Warranty: Five years.
2) Pro Rata: 15 years.

PART 2 - PRODUCTS

2.1 INTERRUPTIBLE (SLOW-TRANSFER) CENTRAL BATTERY EQUIPMENT

A. Provide products from one of the following:
1. Acuity – Iota
2. Current Lighting – Dual-Lite LSN D seires
3. ABB – Emergi – Lite

B. General Requirements for Interruptible (Slow-Transfer) Central Battery Equipment:

1. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. NRTL Compliance: Fabricate and label central battery equipment to comply with UL 924.
3. Comply with the IBC, NFPA 70, and NFPA 101.
4. Source Limitations: Obtain central battery equipment, including batteries, overcurrent protective devices, components, and accessories, from single source from single manufacturer.

C. Performance Requirements:

1. Slow-Transfer Central Battery Equipment: Passive-standby (off-line) system. Automatically sense loss of normal alternating-current (ac) supply and use an electromechanical transfer switch to transfer loads. Transfer in one second or less from normal supply to battery-inverter supply.
2. Automatic Operation:

a. Normal Conditions: Supply the load with ac power flowing from normal ac power input terminals, bypassing inverter, with battery connected in parallel via rectifier/charger output.
b. Abnormal Supply Conditions: If normal ac supply deviates from specified voltage, transfer switch operates and battery supplies constant, regulated ac power through the inverter to the load, with a momentary loss of power to the load.
c. If normal power fails, transfer switch operates and battery supplies constant, regulated ac power through the inverter to the load, with a momentary loss of power to the load.
d. If a fault occurs in system when being supplied by inverter and current flows in excess of the overload rating of inverter, inverter automatically protects itself against damage from overloads and short circuits by shutting down.
e. When normal ac power is restored at input supply terminals of unit, controls automatically retransfer the load back to the normal ac supply, with a momentary loss of power to the load. Rectifier/charger then recharges battery.
f. If normal power failure is prolonged (more than 90 minutes), integral low-voltage battery protective circuit disconnects battery and prevents battery from damage due to deep discharge.
g. If battery becomes discharged, and when normal ac supply is again available, rectifier/charger recharges battery. When battery is fully charged, rectifier/charger automatically shifts to float-charge mode.

h. If battery is disconnected, and normal ac power is available, central battery equipment continues to supply power to the load with no degradation of its regulation of voltage and frequency of output bus.

D. Unit Operating Requirements:

1. Input AC Voltage Tolerance: Plus 10 and minus 15 percent of central battery equipment input voltage rating.
2. Input Frequency Tolerance: Plus, or minus 3 percent of central battery equipment frequency rating.
3. Synchronizing Slew Rate: 1Hz per second, maximum.
4. Minimum Off-Line Efficiency: 95 percent at 60 Hz, full load.
5. Minimum Displacement Primary-Side Power Factor: 96 percent under any load or operating condition.
6. Ambient Temperature Rating (Other Than Batteries): Not less than 68 deg F and not exceeding 86 deg F.
7. Ambient Storage Temperature Rating (Other Than Batteries): Not less than minus 4 deg F and not exceeding 158 deg F.
8. Ambient Temperature Rating (Batteries): Not less than 32 deg F and not exceeding 104 deg F
9. Ambient Storage Temperature Rating (Batteries): Not less than 0 deg F and not exceeding 104 deg F.
10. Humidity Rating: Less than 95 percent (noncondensing).
11. Altitude Rating: Not exceeding 3300 feet.
12. Off-Line Overload Capability: 1.1 times the base load current for 60 seconds; minimum of 1.8 times the base load current for three seconds.

E. Inverter and Controls Logic: Microprocessor based, isolated from all power circuits; provides complete self-diagnostics, periodic automatic testing and reporting; with alarms.

F. Controls and Indication:

1. Status Indication: Door-mounted, labeled LED indicators or digital screen displaying the following conditions:

a. Normal power available.
b. Status of system.
c. Battery charging status.
d. On battery power.
e. System fault.
f. External fault.

G. Self-Protection and Reliability Features:

1. Input transient protection by means of surge suppressors to provide protection against damage from supply voltage surges as defined in IEEE C62.45, Category B and C.
2. Integral, programmable, self-diagnostic and self-test circuitry; with alarms and logging.
3. Battery deep-discharge and self-discharge protection; with alarms.
4. Battery self-test circuitry; with alarms and logging.

H. Integral Input Disconnecting Means and OCPD: Thermal-magnetic circuit breaker, complying with UL 489.

1. Integrated Equipment Minimum Short-Circuit Current (Withstand) Rating: 5kA.

I. Inverter:

1. Description: Solid-state, high-frequency, PWM type, with the following operational features:

a. Automatically regulate output voltage to within plus or minus 3 percent, for all load ranges and for maximum 25 percent step-load changes; regulation may increase to 8 for 100 percent step-load changes.
b. Automatically regulate output frequency to within plus or minus 1Hz, from no load to full load, at unity power factor, over the operating range of battery voltage.
c. Output Voltage Waveform: Sine wave with maximum 3 percent TDD throughout battery operating-voltage range, for 100 percent linear load.
d. Load Power Factor: 0.5 lead to 0.5lag.
e. Inverter Overload Capability: 110 percent for 10 minutes; 150 percent surge for 10 seconds.

J. Rectifier/Battery Charger:

1. Description: Solid state, variable rate, temperature compensated; automatically maintains batteries in fully charged condition when normal power is available.
2. Maximum Battery Recharge Time from Fully Discharged State: 24 hours.
3. Low-voltage disconnect circuit reduces battery discharge during extended power outages, monitors battery voltage, and disconnects inverter when battery voltage drops to no less than 85.7 percent of nominal voltage.

K. Batteries:

1. Description: Standard VRLA batteries.

a. Capable of sustaining full-capacity output of inverter unit for minimum of 90 minutes.

2. Battery Disconnect and OCPD: Manufacturer's standard.

L. Maintenance Bypass Systems:

1. Maintenance Bypass Mode: Internal; manual operation only; bypasses central battery equipment power circuits (inverter and transfer switch); requires local operator selection at central battery equipment. Transfer and retransfer shall be make-before-break, without disrupting power to the load or causing system instabilities.
2. Bypass Overload Capability: 1.5 times the base load current.

M. Integral Output Disconnecting Means and OCPD:

1. Single-Output OCPD: Thermal-magnetic circuit breaker, complying with UL 489 manufacturer's standard ratings based on unit output ratings.

2. Multiple-Output OCPDs: Thermal-magnetic circuit breakers, complying with UL 489; voltage rating matching unit output voltage rating; 15 A, single pole.

    a. Normally Closed/On: 1 with trip alarm.

2.2 SOURCE QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to evaluate central battery equipment fabricator's quality-control and testing methods.

B. Testing: Test and inspect central battery equipment according to UL 924.

C. Factory Tests: Test and inspect assembled central battery equipment**,** by a qualified testing agency**,** according to UL 924.Affix standards organization's label. Include the following:

1. Functional test and demonstration of all functions, controls, indicators, sensors, and protective devices.
2. Full-load test.
3. Transient-load response test.
4. Overload test.
5. Power failure test.

D. Central battery equipment will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Receive, inspect, handle, and store central battery equipment according to NECA 411.

B. Examine areas, surfaces, and substrates to receive central battery equipment, with Installer present, for compliance with requirements for installation tolerances, structural support, ventilation, temperature, humidity, and other conditions affecting performance of the Work.

1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment will be installed, before installation begins.

C. Examine equipment before installation. Reject equipment that is wet, moisture damaged, or mold damaged.

D. Examine roughing-in for electrical connections to verify actual locations of connections before installation.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

F. Prepare a harmonic analysis study and report complying with IEEE 399 and with NETA Acceptance Testing Specification.

3.2 INSTALLATION

A. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.

B. Comply with NECA 1.

C. Wiring Method: Install cables in raceways and cable trays except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used for low-voltage control and alarm wiring. Conceal raceway and cables except in unfinished spaces.

1. Install plenum cable in environmental air spaces, including plenum ceilings.
2. Comply with requirements for cable trays specified in Section 260536 "Cable Trays for Electrical Systems."
3. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."

D. Wiring Method: Conceal conductors and cables in accessible ceilings, walls, and floors where possible.

E. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Install lacing bars and distribution spools.

3.3 CONNECTIONS

A. Connections: Interconnect system components. Make connections to supply and load circuits according to manufacturer's wiring diagrams unless otherwise indicated.

B. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

1. Separately Derived Systems: Make grounding connections to grounding electrodes and bonding connections to metallic piping systems as indicated; comply with NFPA 70.

C. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.4 IDENTIFICATION

A. Identify central battery equipment, components, and control wiring. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.

2. Label central battery equipment with engraved nameplates.
3. Label each separate cabinet, for multicabinet units.
4. Label each enclosure-mounted control and pilot device.

B. Operating Instructions: Frame printed operating instructions for central battery equipment, including control sequences and emergency procedures. Fabricate frame of finished metal, and cover instructions with clear acrylic plastic. Mount on front of central battery equipment units.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections.

D. Acceptance Testing Preparation:

1. Inspect and Test Each Component:

    a. Inspect wiring, components, connections, and equipment installations. Test and adjust components and equipment.
    b. Test insulation resistance for all external branch circuit, feeder, control, and alarm wiring connected to central battery equipment element and component.
    c. Test continuity of each circuit.

E. Tests and Inspections:

1. Inspect central battery equipment, wiring, components, connections, and equipment installation. Test and adjust components and equipment.
2. Test insulation resistance for all external branch circuit, feeder, control, and alarm wiring connected to central battery equipment element and component.
3. Test continuity of each circuit.
4. Verify that input voltages and frequencies at central battery equipment locations are within voltage and frequency limits specified in Part 2. If outside this range, notify Construction Manager before closing input OCPDs.
5. Perform each visual and mechanical inspection and electrical test stated in manufacturer's written instructions and in NETA Acceptance Testing Specification, including specifically those for batteries, battery chargers, and UPS, regardless of the type of central battery equipment provided. Certify compliance with test parameters.
6. Perform a load-duration test at rated voltage and rated output current to verify the correct functional operation of the unit under full-load stable operating conditions for the minimum time limits required by UL 924. Monitor and record ambient temperature and temperatures within the unit.
7. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
8. Perform the following infrared (thermographic) scan tests and inspections and prepare reports:

a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of central battery equipment. Remove front panels so joints and connections are accessible to portable scanner.
b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of central battery equipment 11 months after date of Substantial Completion.
c. Instruments and Equipment: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

9. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

F. Prepare test and inspection reports, including a certified report that identifies central battery equipment and describes all test results. Include notation of deficiencies detected, remedial action taken, and observations made after remedial action.

3.6 STARTUP SERVICE

A. Perform startup service.

1. Complete installation and startup check according to manufacturer's written instructions.

3.7 ADJUSTING

A. Program microprocessors for required operational sequences, status indications, alarms, event recording, and display features. Clear events memory after final acceptance testing and prior to Substantial Completion.

B. Set field-adjustable switches, auxiliary relays, and other adjustable parts.

C. Adjust the trip settings of thermal-magnetic circuit breakers with adjustable, instantaneous-trip elements; install fuses if not factory installed.

D. Set the automatic system test parameters.

E. Set field-adjustable, circuit-breaker trip ranges.

3.8 PROTECTION

A. Temporary Heating: Apply temporary heat to maintain temperature according to manufacturer's written instructions until controllers are ready to be energized and placed into service.

B. Replace central battery equipment whose interiors have been exposed to water or other liquids prior to Substantial Completion.

3.9 DEMONSTRATION

A. Engage a factory-authorized service representative to **train** Owner's maintenance personnel to adjust, operate, and maintain central battery equipment, and to use and reprogram microprocessor-based control, monitoring, and display functions.

END OF SECTION 263323.11

SECTION 265119 - LED INTERIOR LIGHTING

PART 1 - PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Interior solid-state luminaires that use LED technology.
2. Lighting fixture supports.

B. Related Requirements:

1. Section 260923 "Lighting Control Devices" for automatic control of lighting, including time switches, photoelectric relays, occupancy sensors, and multipole lighting relays and contactors.

1.3 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color Rendering Index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. LED: Light-emitting diode.

F. Lumen: Measured output of lamp and luminaire, or both.

G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Arrange in order of luminaire designation.
2. Include data on features, accessories, and finishes.
3. Include physical description and dimensions of luminaires.
4. Include emergency lighting units, including batteries and chargers.

5. Include life, output (lumens, CCT, and CRI), and energy efficiency data.
6. Photometric data and adjustment factors based on laboratory tests.

    a. Manufacturers' Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.
    b. Testing Agency Certified Data: For indicated luminaires, photometric data certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.

B. Samples: For each luminaire and for each color and texture with standard factory-applied finish.

C. Samples for Initial Selection: For each type of luminaire with custom factory-applied finishes.

1. Include Samples of luminaires and accessories involving color and finish selection.

D. Samples for Verification: For each type of luminaire.

1. Include Samples of luminaires and accessories to verify finish selection.

E. Product Schedule: For luminaires and lamps. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Lighting luminaires.
2. Suspended ceiling components.
3. Partitions and millwork that penetrate the ceiling or extend to within 12 inches of the plane of the luminaires.
4. Structural members to which equipment and or luminaires will be attached.
5. Initial access modules for acoustical tile, including size and locations.
6. Items penetrating finished ceiling, including the following:

    a. Other luminaires.
    b. Air outlets and inlets.
    c. Sprinklers.
    d. Access panels.

B. Qualification Data: For testing laboratory providing photometric data for luminaires.

C. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Product Certificates: For each type of luminaire.

E. Product Test Reports: For each luminaire, for tests performed by manufacturer and witnessed by a qualified testing agency.

F. Sample warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For luminaires and lighting systems to include in operation and maintenance manuals.

1. Provide a list of all lamp types used on Project; use ANSI and manufacturers' codes.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Lamps: Ten for every 100 of each type and rating installed. Furnish at least one of each type.
2. Diffusers and Lenses: One for every 100 of each type and rating installed. Furnish at least one of each type.
3. Globes and Guards: One for every 20 of each type and rating installed. Furnish at least one of each type.

1.8 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturer's laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.

B. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7, accredited under the NVLAP for Energy Efficient Lighting Products, and complying with the applicable IES testing standards.

C. Provide luminaires from a single manufacturer for each luminaire type.

D. Each luminaire type shall be binned within a three-step MacAdam Ellipse to ensure color consistency among luminaires.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.10 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Luminaires shall withstand the effects of earthquake motions determined according to ASCE/SEI 7

B. Seismic Performance: Luminaires and lamps shall be labeled vibration and shock resistant.

1. The term "withstand" means "the luminaire will remain in place without separation of any parts when subjected to the seismic forces specified.

2.2 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. NRTL Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by an NRTL.

C. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.

D. Recessed Fixtures: Comply with NEMA LE 4.

E. Bulb shape complying with ANSI C79.1.

F. Lamp base complying with ANSI C81.61.

G. CRI of minimum 80 CCT of 2700 K

H. Rated lamp life of 35,000 hours.

I. Lamps dimmable from 100 percent to 0 percent of maximum light output.

J. Internal driver.

K. Nominal Operating Voltage: 120 V ac

1. Lens Thickness: At least 0.125-inch minimum unless otherwise indicated.

L. Housings:

1. Extruded-aluminum housing and heat sink.
2. Coordinate finishes with the Architect.

2.3 CYLINDER

A. Minimum 1000 lumens. Minimum allowable efficacy of 80 lumens per watt.

B. With integral mounting provisions.

C. Refer to lighting fixture schedules for proposed fixtures.

2.4 DOWNLIGHT

A. Minimum 700 lumens. Minimum allowable efficacy of 80 lumens per watt.

B. Universal mounting bracket.

C. Integral junction box with conduit fittings.

D. Refer to lighting fixture schedules for proposed fixtures.

2.5 MATERIALS

A. Metal Parts:

1. Free of burrs and sharp corners and edges.
2. Sheet metal components shall be steel unless otherwise indicated.
3. Form and support to prevent warping and sagging.

B. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

C. Diffusers and Globes:

1. diffuse glass
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Coordinate finishes with architect finish.

E. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps. Locate labels where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following lamp characteristics:

a. "USE ONLY" and include specific lamp type.
b. Lamp diameter, shape, size, wattage, and coating.
c. CCT and CRI for all luminaires.

2.6 METAL FINISHES

A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.7 LUMINAIRE FIXTURE SUPPORT COMPONENTS

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

C. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gage.

D. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.

E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before fixture installation. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 TEMPORARY LIGHTING

A. If approved by the Architect, use selected permanent luminaires for temporary lighting. When construction is sufficiently complete, clean luminaires used for temporary lighting and install new lamps.

3.3 INSTALLATION

A. Comply with NECA 1.

B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

C. Install lamps in each luminaire.

D. Supports:

1. Sized and rated for luminaire weight.
2. Able to maintain luminaire position after cleaning and relamping.
3. Provide support for luminaire without causing deflection of ceiling or wall.
4. Luminaire mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and vertical force of 400 percent of luminaire weight.

E. Flush-Mounted Luminaire Support:

1. Secured to outlet box.
2. Attached to ceiling structural members at four points equally spaced around circumference of luminaire.
3. Trim ring flush with finished surface.

F. Wall-Mounted Luminaire Support:

1. Attached to structural members in walls
2. Do not attach luminaires directly to gypsum board.

G. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

3.4 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.5 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.

B. Luminaire will be considered defective if it does not pass operation tests and inspections.

C. Prepare test and inspection reports.

3.6 STARTUP SERVICE

A. Comply with requirements for startup specified in Section 260943.16 "Addressable-Fixture Lighting Controls."

B. Comply with requirements for startup specified in Section 260943.23 "Relay-Based Lighting Controls."

3.7 ADJUSTING

A. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting the direction of aim of luminaires to suit occupied conditions. Make up to two visits to Project during other-than-normal hours for this purpose. Some of this work may be required during hours of darkness.

1. During adjustment visits, inspect all luminaires. Replace lamps or luminaires that are defective.
2. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
3. Adjust the aim of luminaires in the presence of the Architect.

END OF SECTION 265119

SECTION 26 56 00

EXTERIOR LIGHTING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Exterior luminaires with lamps and ballasts.
2. Luminaire-mounted photoelectric relays.
3. Poles and accessories.
4. Luminaire lowering devices.

B. Related Sections:

1. Division 26 Section "Interior Lighting" for exterior luminaires normally mounted on exterior surfaces of buildings.

1.3 REFERENCES

A. National Fire Protection Association (NFPA):

B. NFPA 70, “National Electrical Code”, (NEC)

C. Illuminating Engineering Society of North America (IESNA):

1. IES Approved Method for Life Performance Testing of General Lighting Incandescent Filament Lamps, LM-49.
2. IES Approved Method for Electrical and Photometric Measurements of General Service Incandescent Filament Lamps, LM-45.
3. IES Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products, LM-79.
4. IES Approved Method for Measuring Lumen Maintenance of LED Light Sources, LM-80.
5. IES Approved Method for Characterization of LED Light Engines and LED Lamps for Electrical and Photometric Properties as a Function of Temperature, LM-82.
6. IES Projecting Long Term Lumen Maintenance of LED Products, TM-21-11

D. American National Standards Institute (ANSI):

1. ANSI C78.377, Specifications for the Chromaticity of Solid State Lighting Products.
2. ANSI C81 Series, Electric Lamp Bases and Holders.

E. National Electric Manufacturer’s Association (NEMA):

1. NEMA FA1, “Outdoor Flood Lighting Equipment”.
2. NEMA SH5, “Tubular Steel, Aluminum and Prestressed Concrete Roadway Lighting Poles”.

F. Underwriter’s Laboratories (U.L.) Standards.

G. Codes: Materials and installations shall be in accordance with the latest revision of the National Electrical Code and any applicable Federal, State and local codes and regulations.

H. Listing: All luminaires shall be manufactured in strict accordance with the appropriate and current requirements of the National Electrical Code as verified by Underwriters' Laboratories, Inc. (U.L.), or tested to UL standards by other nationally recognized testing agency as acceptable to Building Officials and Code Administrators International (BOCAI); the International Conference of Building Officials (ICBO); or other relevant code authority recognized by the jurisdiction within which the project is being constructed. Such a listing shall be provided for each luminaire type, and the appropriate label or labels shall be affixed to each luminaire in a location as required by code or law.

1.4 DEFINITIONS

A. BF: Ballast factor.

B. CCT: Correlated color temperature.

C. CRI: Color-rendering index.

D. LED: Light-emitting Diode

E. HID: High-intensity discharge.

F. LER: Luminaire efficacy rating.

G. Lumen: Measured output of lamp and luminaire, or both.

H. Luminaire: Complete lighting fixture, including ballast/driver and lamp.

I. LED Light Engine: a combination of an LED module and the associated control gear (driver).

J. Pole: Luminaire support structure, including tower used for large area illumination.

K. Standard: Same definition as "Pole" above.

L. EPA rating: Outdoor wind load value associated with pole-mounted luminaires

1.5 STRUCTURAL ANALYSIS CRITERIA FOR POLE SELECTION

A. Dead Load: Weight of luminaire and its horizontal and vertical supports, lowering devices, and supporting structure, applied as stated in AASHTO LTS-4-M.

B. Live Load: Single load of 500 lbf (2224 N), distributed as stated in AASHTO LTS-4-M.

C. Wind Load: Pressure of wind on pole and luminaire and banners and banner arms, calculated and applied as stated in AASHTO LTS-4-M.

1. Basic wind speed for calculating wind load for poles exceeding in height is 125 mph.

a. Wind Importance Factor: 1.0.
b. Minimum Design Life: 50 years.
c. Velocity Conversion Factors: 1.0.

1.6 SUBMITTALS

A. Product Data: For each luminaire, pole, and support component, arranged in order of lighting unit designation. Include data on features, accessories, finishes, and the following:

1. Physical description of luminaire, including materials, dimensions, effective projected area, and verification of indicated parameters.
2. Details of attaching luminaires and accessories.
3. Details of installation and construction.
4. Luminaire materials.
5. Photometric data based on laboratory tests of each luminaire type, complete with indicated lamps, LED modules, ballasts, drivers, and accessories.

    a. Testing Agency Certified Data: For indicated luminaires, photometric data shall be certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.
    b. Manufacturer Certified Data: Photometric data shall be certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.

6. Photoelectric relays.
7. Ballasts and/or drivers, including energy-efficiency data.
8. Lamps and/or LED modules, including life, output, CCT, CRI, lumens, and energy-efficiency data.
9. Materials, dimensions, and finishes of poles.
10. Means of attaching luminaires to supports, and indication that attachment is suitable for components involved.
11. Anchor bolts for poles.
12. Manufactured pole foundations.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Anchor-bolt templates keyed to specific poles and certified by manufacturer.
3. Design calculations, certified by a qualified professional engineer, indicating strength of screw foundations and soil conditions on which they are based.
4. Wiring Diagrams: For power, signal, and control wiring.

C. Samples: For products designated for sample submission in the Exterior Lighting Device Schedule. Each Sample shall include the following:

1. Lamps and ballasts, installed.
2. Cords and plugs.
3. Specified support system.

D. Installation Instructions.

E. Pole and Support Component Certificates: Signed by manufacturers of poles, certifying that products are designed for indicated load requirements in AASHTO LTS-4-M and that load imposed by luminaire and attachments has been included in design. The certification shall be based on design calculations by a professional engineer.

F. Qualification Data: For qualified agencies providing photometric data for lighting fixtures.

G. Field quality-control reports.

H. Operation and Maintenance Data: For luminaires and poles luminaire lowering devices to include in emergency, operation, and maintenance manuals.

I. Warranty: Sample of special warranty.

1.7 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with IEEE C2, "National Electrical Safety Code."

D. Comply with NFPA 70.

E. FM Global Compliance: Lighting fixtures for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.

F. LED Luminaires shall be photometrical tested in accordance with IESNA LM-79 Standard

G. Life and operation of LED modules shall be tested in accordance with IESNA LM-80 Standard

H. White LEDs shall be binned to a minimum chromaticity in accordance with ANSI/NEMA/ANSLG C78.377-2015 Standard

1.8 DELIVERY, STORAGE, AND HANDLING

A. Package aluminum poles for shipping according to ASTM B 660.

B. Store poles on decay-resistant-treated skids at least 12 inches (300 mm) above grade and vegetation. Support poles to prevent distortion and arrange to provide free air circulation.

C. Retain factory-applied pole wrappings on fiberglass and laminated wood poles until right before pole installation. Handle poles with web fabric straps.

D. Retain factory-applied pole wrappings on metal poles until right before pole installation. For poles with nonmetallic finishes, handle with web fabric straps.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace products that fail in materials or workmanship; that corrode; or that fade, stain, perforate, erode, or chalk due to effects of weather or solar radiation within specified warranty period. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, or unauthorized repairs or alterations from special warranty coverage.

1. Warranty for LED Luminaires: Entire LED luminaire shall be provided with a minimum 5-Year Manufacturer’s warranty unless otherwise noted in the lighting fixture schedule. The Warranty shall commence on the date the LED luminaire installation is turned over to the project owner.

PART 2 **PRODUCTS**

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide products indicated on Drawings.

2.2 GENERAL REQUIREMENTS FOR LUMINAIRES

A. Luminaires shall comply with UL 1598 and be listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction.

1. LER Tests HID Fixtures: Where LER is specified, test according to NEMA LE 5B.

B. Lateral Light Distribution Patterns: Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.

C. Metal Parts: Free of burrs and sharp corners and edges.

D. Sheet Metal Components: Corrosion-resistant aluminum unless otherwise indicated. Form and support to prevent warping and sagging.

E. Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use. Provide filter/breather for enclosed luminaires.

F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses. Designed to disconnect ballast when door opens.

G. Exposed Hardware Material: Stainless steel.

H. Plastic Parts: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.

I. Light Shields: Metal baffles, factory installed and field adjustable, arranged to block light distribution to indicated portion of normally illuminated area or field.

J. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:

1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.

K. Lenses and Refractors Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.

L. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.

M. Factory-Applied Finish for Steel Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning," to remove dirt, oil, grease, and other contaminants that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or SSPC-SP 8, "Pickling."
2. Exterior Surfaces: Manufacturer's standard finish consisting of one or more coats of primer and two finish coats of high-gloss, high-build polyurethane enamel.

    a. Color: As indicated on plans or as selected by Architect from manufacturer's full range.

N. Factory-Applied Finish for Aluminum Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
2. Natural Satin Finish: Provide fine, directional, medium satin polish (AA-M32); buff complying with AA-M20; and seal aluminum surfaces with clear, hard-coat wax.

3. Class I, Clear Anodic Finish: AA-M32C22A41 (Mechanical Finish: medium satin; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

    a. Color: As indicated on plans or as selected by Architect from manufacturer's full range.

O. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps and ballasts. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following lamp and ballast characteristics:

    a. "USES ONLY" and include specific lamp type.
    b. CCT and CRI for all luminaires.

2.3 LUMINAIRE-MOUNTED PHOTOELECTRIC RELAYS

A. Comply with UL 773 or UL 773A.

B. Contact Relays: Factory mounted, single throw, designed to fail in the on position, and factory set to turn light unit on at 1.5 to 3 fc (16 to 32 lx) and off at 4.5 to 10 fc (48 to 108 lx) with 15-second minimum time delay. Relay shall have directional lens in front of photocell to prevent artificial light sources from causing false turnoff.]

1. Relay with locking-type receptacle shall comply with ANSI C136.10.
2. Adjustable window slide for adjusting on-off set points.

C. Ballasts for Low-Temperature Environments:

1. Temperatures 0 Deg F (Minus 17 Deg C) and Higher: Electronic or electromagnetic type rated for 0 deg F (minus 17 deg C) starting and operating temperature with indicated lamp types.

D. Ballasts for Dimmer-Controlled Lighting Fixtures: Electronic type.

1. Dimming Range: 100 to 5 percent of rated lamp lumens.
2. Ballast Input Watts: Can be reduced to 20 percent of normal.
3. Compatibility: Certified by manufacturer for use with specific dimming control system and lamp type indicated.
4. Control: Coordinate wiring from ballast to control device to ensure that the ballast, controller, and connecting wiring are compatible.

2.4 LED LUMINAIRES AND DRIVERS

A. LED luminaire shall be constructed and heat-sinked to maintain LED performance as reported by LED manufacturer and exhibited in IESNA LM-79 and LM-80 test reports.

B. LEDs shall be of the color temperature and Color Rendering Index (CRI) as specified on the drawings. Minimum LED performance shall be 70% lumen maintenance at 50,000 hours operation at a forward current up to 700mA with junction temperature maintained at or below 135° C.

C. LED drivers shall be integral or remote type as specified on the drawings and shall provide continuous current matched to LED array requirements. Driver shall be High Power Factor (HPF) with <20% total harmonic distortion (THD) full load, Driver performance shall comply with the requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR Part 15.

2.5 GENERAL REQUIREMENTS FOR POLES AND SUPPORT COMPONENTS

A. Structural Characteristics: Comply with AASHTO LTS-4-M.

1. Wind-Load Strength of Poles: Adequate at indicated heights above grade without failure, permanent deflection, or whipping in steady winds of speed indicated in "Structural Analysis Criteria for Pole Selection" Article.
2. Strength Analysis: For each pole, multiply the actual equivalent projected area of luminaires and brackets by a factor of 1.1 to obtain the equivalent projected area to be used in pole selection strength analysis.

B. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless-steel fasteners and mounting bolts unless otherwise indicated.

C. Mountings, Fasteners, and Appurtenances: Corrosion-resistant items compatible with support components.

1. Materials: Shall not cause galvanic action at contact points.
2. Anchor Bolts, Leveling Nuts, Bolt Caps, and Washers: Hot-dip galvanized after fabrication unless otherwise indicated.
3. Anchor-Bolt Template: Plywood or steel.

D. Handhole: Oval-shaped, with minimum clear opening of 2-1/2 by 5 inches (65 by 130 mm), with cover secured by stainless-steel captive screws.

E. Concrete Pole Foundations: Cast in place, with anchor bolts to match pole-base flange. Concrete, reinforcement, and formwork are specified in Division 03 Section "Cast-in-Place Concrete."

F. Breakaway Supports: Frangible breakaway supports, tested by an independent testing agency acceptable to authorities having jurisdiction, according to AASHTO LTS-4-M.

2.6 STEEL POLES

A. Poles: Comply with ASTM A 500, Grade B, carbon steel with a minimum yield of 46,000 psig (317 MPa); one-piece construction up to 40 feet (12 m) in height with access handhole in pole wall.

1. Shape: As scheduled on plans.
2. Mounting Provisions: Butt flange for bolted mounting on foundation or breakaway support.

B. Brackets for Luminaires: Detachable, cantilever, without underbrace.

1. Adapter fitting welded to pole, allowing the bracket to be bolted to the pole mounted adapter, then bolted together with stainless-steel bolts.
2. Cross Section: Tapered oval, with straight tubular end section to accommodate luminaire.
3. Match pole material and finish.

C. Pole-Top Tenons: Fabricated to support luminaire or luminaires and brackets indicated, and securely fastened to pole top.

D. Grounding and Bonding Lugs: Welded 1/2-inch (13-mm) threaded lug, complying with requirements in Division 26 Section "Grounding and Bonding for Electrical Systems," listed for attaching grounding and bonding conductors of type and size listed in that Section, and accessible through handhole.

E. Cable Support Grip: Wire-mesh type with rotating attachment eye, sized for diameter of cable and rated for a minimum load equal to weight of supported cable times a 5.0 safety factor.

F. Platform for Lamp and Ballast/driver Servicing: Factory fabricated of steel with finish matching that of pole.

G. Prime-Coat Finish: Manufacturer's standard prime-coat finish ready for field painting.

H. Galvanized Finish: After fabrication, hot-dip galvanize complying with ASTM A 123/A 123M.

I. Factory-Painted Finish: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning," to remove dirt, oil, grease, and other contaminants that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or with SSPC-SP 8, "Pickling."
2. Interior Surfaces of Pole: One coat of bituminous paint, or otherwise treat for equal corrosion protection.
3. Exterior Surfaces: Manufacturer's standard finish consisting of one or more coats of primer and two finish coats of high-gloss, high-build polyurethane enamel.

a. Color: As indicated in the Lighting Fixture schedule or by Architect from manufacturer’s full range.

2.7 ALUMINUM POLES

A. Poles: Seamless, extruded structural tube complying with ASTM B 429/B 429M, Alloy 6063-T6 with access handhole in pole wall.

B. Poles: ASTM B 209, 5052-H34 marine sheet alloy with access handhole in pole wall.

1. Shape: As indicated on drawings.
2. Mounting Provisions: Butt flange for bolted mounting on foundation or breakaway support.

C. Pole-Top Tenons: Fabricated to support luminaire or luminaires and brackets indicated, and securely fastened to pole top.

D. Grounding and Bonding Lugs: Welded 1/2-inch (13-mm) threaded lug, complying with requirements in Division 26 Section "Grounding and Bonding for Electrical Systems," listed for attaching grounding and bonding conductors of type and size listed in that Section, and accessible through handhole.

E. Brackets for Luminaires: Detachable, with pole and adapter fittings of cast aluminum. Adapter fitting welded to pole and bracket, then bolted together with stainless-steel bolts.

1. As indicated on drawings.
2. Finish: Same as luminaire.

F. Prime-Coat Finish: Manufacturer's standard prime-coat finish ready for field painting.

G. Aluminum Finish: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
2. As scheduled on drawings.

a. Color: As indicated in the Lighting Fixture schedule or by Architect from manufacturer’s full range.

PART 3 **EXECUTION**

3.1 LUMINAIRE INSTALLATION

A. Install lamps in each luminaire.

B. Fasten luminaire to indicated structural supports.

1. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.

C. Adjust luminaires that require field adjustment or aiming. Include adjustment of photoelectric device to prevent false operation of relay by artificial light sources, favoring a north orientation.

D. Remote Mounting of Ballasts/Drivers/Power Supplies: Distance between the ballast/driver/power supply and fixture shall not exceed that recommended by ballast/power supply manufacturer. Verify, with ballast/driver/power supply manufacturers, maximum distance between ballast/driver/power supply and luminaire.

3.2 POLE INSTALLATION

A. Alignment: Align pole foundations and poles for optimum directional alignment of luminaires and their mounting provisions on the pole.

B. Clearances: Maintain the following minimum horizontal distances of poles from surface and underground features unless otherwise indicated on Drawings:

1. Fire Hydrants and Storm Drainage Piping: 60 inches (1520 mm).
2. Water, Gas, Electric, Communication, and Sewer Lines: 10 feet (3 m.
3. Trees: 15 feet (5 m)] from tree trunk.

C. Concrete Pole Foundations: Set anchor bolts according to anchor-bolt templates furnished by pole manufacturer. Concrete materials, installation, and finishing requirements are specified in Division 03 Section "Cast-in-Place Concrete."

D. Foundation-Mounted Poles: Mount pole with leveling nuts, and tighten top nuts to torque level recommended by pole manufacturer.

1. Use anchor bolts and nuts selected to resist seismic forces defined for the application and approved by manufacturer.
2. Grout void between pole base and foundation. Use nonshrink or expanding concrete grout firmly packed to fill space.
3. Install base covers unless otherwise indicated.
4. Use a short piece of 1/2-inch- (13-mm-) diameter pipe to make a drain hole through grout. Arrange to drain condensation from interior of pole.

3.3 BOLLARD LUMINAIRE INSTALLATION

A. Align units for optimum directional alignment of light distribution.

B. Install on concrete base with top 4 inches (100 mm) above finished grade or surface at bollard location. Cast conduit into base, and shape base to match shape of bollard base. Finish by troweling and rubbing smooth. Concrete materials, installation, and finishing are specified in Division 03 Section "Cast-in-Place Concrete."

3.4 CORROSION PREVENTION

A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.

B. Steel Conduits: Comply with Division 26 Section "Raceway and Boxes for Electrical Systems." In concrete foundations, wrap conduit with 0.010-inch- (0.254-mm-) thick, pipe-wrapping plastic tape applied with a 50 percent overlap.

3.5 GROUNDING

A. Ground metal poles and support structures according to Division 26 Section "Grounding and Bonding for Electrical Systems."

1. Install grounding electrode for each pole unless otherwise indicated.
2. Install grounding conductor pigtail in the base for connecting luminaire to grounding system.

B. Ground nonmetallic poles and support structures according to Division 26 Section "Grounding and Bonding for Electrical Systems."

1. Install grounding electrode for each pole.
2. Install grounding conductor and conductor protector.
3. Ground metallic components of pole accessories and foundations.

3.6 FIELD QUALITY CONTROL

A. Inspect each installed fixture for damage. Replace damaged fixtures and components.

B. Illumination Observations: Verify normal operation of lighting units after installing luminaires and energizing circuits with normal power source.

1. Verify operation of photoelectric controls.

C. Illumination Tests:

1. Measure light intensities at night. Use photometers with calibration referenced to NIST standards. Comply with the following IESNA testing guide(s):

a. IESNA LM-5, "Photometric Measurements of Area and Sports Lighting Installations."
b. IESNA LM-64, "Photometric Measurements of Parking Areas."
c. IESNA LM-72, "Directional Positioning of Photometric Data."

D. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

3.7 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain luminaire lowering devices.

3.8 STARTUP SERVICE

A. Burn-in all lamps that require specific aging period to operate properly, prior to occupancy by Owner. Burn-in LED lamps/luminaires intended to be dimmed, for at least 100 hours at full voltage.

END OF SECTION

SECTION 31000

SITE PREPARATION AND DEMOLITION

PART 1 GENERAL

1.1 DESCRIPTION

A. This Section specifies requirements for site clearance and demolition.

B. Work performed under this section of the specifications shall be subject to the General Conditions, Supplementary Conditions and Division 1 General Provisions of the Contract Documents.

C. This specification includes:

1. Clearing and grubbing

2. Demolition of site features including but not limited to structures, retaining walls, signage, light standards, and appurtenances

3. Disposal of material from clearing, grubbing, and demolition in approved off-site disposal areas

4. Filling of voids and excavations resulting from the work

1.2 RELATED SECTIONS

A. Other specification Sections which directly relate to the work of this Section include:

1. N/A

1.3 SITE CONDITIONS

A. Site conditions existing during the bidding period will be maintained by the Owner insofar as practical.

B. Actual site condition variations that differ from those of the bidding period that affect site preparation operations shall be brought to the attention of the Owner prior to the commencement of any site work.

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

3.1 PROTECTION

A. The Contractor shall flag the limits of clearing shown on the drawings by accurate field survey with marked stakes or other means acceptable to the Landscape Architect. The Landscape Architect shall be notified a minimum of five working days prior to scheduled commencement of clearing operations to review the flagged limits. Adjust the clearing limits as directed by the Landscape Architect.

B. Before clearing begins, protect designated trees to remain with tree protection fencing to the approximate diameter of foliage to prevent damage to the trunk, foliage and root system by construction equipment and procedures.

C. Place tree protection fencing as required to protect other plants, adjacent property areas to remain uncleared, monuments and existing improvements from damage.

D. The Contractor shall repair or replace immediately any damage to existing trees or root systems that are to remain and to trees that are to be transplanted. The Contractor shall employ an arborist licensed in the State of New York to determine the repair and replacement needs and methods for approval by the Landscape Architect.

E. Replace damaged shrubs and other vegetation designated to remain with the same size and species.

F. The tree protection fencing shall be maintained for the duration of construction operations. The work shall include immediate replacement of any damaged fence. Fencing shall be removed from the site at the completion of construction operations. The fencing disposal shall be in accordance with local, state and federal laws and regulations for the disposal of the material.

3.2 UTILITIES

A. Notify all corporations, companies, individuals or local authorities owning, or having jurisdiction over, utilities running to, through or across areas to be affected by demolition operations.

B. Locate and identify existing utilities that are to remain and protect them from damage.

3.3 CLEARING AND GRUBBING

A. Clearing shall include cutting, removal, and off-site disposal of trees, bushes, shrubs, stumps, fallen timber, refuse, trash, fencing and other incidental materials not required for reuse on the site.

B. The Contractor shall grub the area within the clearing limits to completely remove stumps and root systems, except for those to remain or to be transplanted.

C. Depressions, excavations and voids resulting from the removal of stumps or roots shall be filled with suitable material and compacted as specified under Section 31 00 00 (Earthwork).

3.4 DEMOLITION REQUIREMENTS

A. Conduct demolition operations in a manner that will prevent damage to adjacent structures, utilities, pavements and other facilities to remain.

B. Cease operations immediately if any damage, settlement or other adverse effect on adjacent structures occurs. However, if an obvious unsafe condition is created that would potentially cause injury to persons or undue harm to properties, the Contractor shall take whatever measures are warranted to prevent such injury or harm. Immediately notify the Landscape Architect and regulatory authorities. Do not resume operations until conditions are corrected, damage repaired and approval has been received from the appropriate authorities and Owner's Representative.

C. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon or affect access to their property. Copies of the permission documents shall be submitted to the Landscape Architect.

D. Provide hoses and water connections. Spray water on demolition debris to minimize dust.

E. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing prior to start of work.

F. All hazardous waste removal shall be performed by a hazardous waste Contractor qualified and duly licensed by the State of New York to remove, transport and dispose of each type of hazardous substance.

G. Comply with state and local regulations pertaining to the crushing, processing, and reuse of Asphalt, Brick and Concrete Rubble.

3.5 FILLING VOIDS

A. Completely fill all voids including, but not limited to, excavation areas, and voids resulting from demolition or removal of structures.

B. Areas to be filled shall be free of standing water, frost, frozen, and unsuitable material prior to fill placement.

C. Place and compact fill materials in conformance with the requirements of Section 31 00 00 (Earthwork).

D. Grade filled area surface to match adjacent grades and slope to provide surface drainage.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from site all materials resulting from demolition operations.

B. No burning of any material will be allowed.

END OF SECTION

SECTION 321216

ASPHALT PAVEMENT

PART 1 - GENERAL

1.01 SUMMARY

1. Provide asphalt paving.

1.02 REFERENCES

A. ASTM D946 – Penetration –Graded Asphalt Cement for use in Pavement Construction.

B. ASTM D424 – Standard Method of Test for Plastic Limit.

C. ASTM C33 – Standard Specification for Concrete Aggregates.

D. ASTM D1559 – Test Methods for Resistance of Plastic Flow of Bituminous Mixtures Using Marshall Apparatus.

E. ASTM D2028 – Standard Specification for Cutback Asphalt (Rapid Curing Type)

1.03 SUBMITTALS

A. Design Mix: Before any asphaltic concrete paving is constructed, submit actual design mix to the Landscape Architect for review and/or approval. Design mix submittal shall include the type/name of the mix, gradation analysis, grade of asphalt cement used, sources of all ingredient materials, percentages by weight and the number of pounds of each of the materials and direct references to the Standard Specifications sections for each material. Mix design over three (3) years old will not be accepted by the Landscape Architect.

B. Material Certificates: Submit materials certificate to the Landscape Architect which is signed by material producer and Contractor, certifying that materials comply with, or exceed, the requirements herein.

PART 2 - PRODUCTS

2.01 COARSE AGGREGATE BASE COURSE

A. Base course shall conform to Type 1, Grade B: Broken Stone, Moderately Resistant to Abrasion.

B. Aggregate shall be broken, clean, hard, unweathered stone of uniform quality. It shall consist of fragments roughly cubical or pyramidal in shape.

C. Aggregate shall comply with the following sieve analysis (percent by weight passing square sieve openings):

Type of Mix	Nominal Size	2”	1”	½”	3/8”	#4	#8	#100	#200
Dense Graded Stone Base	1” to #200	100	80-100	-	-	25-60	-	-	0-10

D. The plasticity index of the material passing the #200 sieve shall not exceed 5.0 as determined in accordance with ASTM D424.

2.02 ASPHALTIC CONCRETE WEARING COURSE

A. Asphaltic concrete wearing course shall consist of a binder mixture and a fine-mix asphaltic concrete surface course mixture in layer thicknesses indicated on Drawing.

B. Asphaltic cement shall comply with the requirements of ASTM D946, except that the ductility test shall be run at 60 degrees Fahrenheit and that the petroleum derivative in the Spot Test with standard naphtha solvent in 24 hours shall be negative. Asphaltic cement shall be viscosity grade AC-20 meeting the requirements listed below and shall be either fluxed natural asphalt or residual asphalt derived from the distillation of asphaltic petroleum.

Grade	AC-10		AC-20	
Requirements	Min.	Max.	Min.	Max.
Viscosity@ 140F(60C), poises	800	1200	1600	2400
Viscosity@ 275F(135C), Cs.	250*	-	300*	-
Penetration, 77F(25C) 100g, 5 sec.	70*	-	60*	-
Flash Point, COC, F	425	-	450	-
Solubility in trichloroethylene, %	99	-	99	-
Test on Residue from thin-film oven test (TFOT): Loss on heating, %	-	0.50	-	0.50
Ductility, 60F(15.5C), 5 cm/min., cm.#40	40*	-	30*	-

Viscosity Ratio@ 140F(60C), poises after:before TFOT	-	4*	-	4*

C. The above requirements denoted with an asterisk (*) may deviate for asphalt cements refined from Domestic Mid-continent, Canadian, or Boscan crudes with prior approval of the Landscape Architect.

D. Sand shall be of Type 2A or 2B and shall consist of clean, hard, durable, rough-surfaced mineral particles. Sand shall not contain any deleterious substances in excess of that shown in Table 1 of ASTM C33.

E. Coarse aggregate for binder mix shall be a Type 1, Grade B, ASSHTO size #57 stone. Coarse aggregate for fine-mix surface course shall be a Type 1, Grade A, AASHTO size #8 stone.

F. Mineral dust shall be limestone or other approved dust, be thoroughly dry when delivered, be of one grade, and contain not more than 50% free silicon dioxide. Dust shall have a record of satisfactory performance in pavements for not less than three (3) years. Mineral dust shall not be permitted in Binder Mixture.

G. Aggregate within asphaltic concrete mixes shall comply with the following sieve analyses:

Sieve Size	Binder Course		Fine-Mix Surface Course	
	% Passing	Tol.(%)	% Passing	Tol.(%)
1 ½”	100	-		
1”	95-100	-	100	-
½”	70-90	±6	90-100	-
¼”	48-74	±7	65-85	±7
1/8”	32-62	±7	36-65	±7
#20	15-39	±7	15-39	±7
#40	8-27	±7	8-27	±7

#80	4-16	±4	4-16	±4
#200	2-8	±2	2-6	±2
Bitumen percent by weight soluble in chloroform	4.5-6.5	±0.4	5.8-7.0	±0.4

H. Tack Coat shall be rapid curing liquid asphalt conforming to ASTM D2028 Grade RC-70, and shall be a product of fluxing an asphaltic residuum with a distillate. Liquid asphalt shall be homogeneous and free from water.

2.03 EQUIPMENT

A. Maintain equipment in satisfactory operating condition and correct breakdowns in a manner that will not delay or be detrimental to progress of paving operations.

PART 3 – EXECUTION

3.01 INGREDIENTS

A. The asphaltic cement shall be heated in approved receptacles to a temperature between 275 and 325 degrees F. It shall be kept uniform in composition and consistency by thorough mixing and agitation. Approved methods of agitation that will not injure the cement shall be used.

B. The materials comprising the charge for each batch shall be proportioned accurately by weight or by volume. The proportioning apparatus shall be of approved design, kept in good working order and accurate to 0.5 percent. Fluid materials may be measured by approved fluidometers.

C. When mixed in a batch mixer prior to the addition of the asphaltic cement, the aggregate shall be deposited in the mixer and thoroughly mixed for a period of not less than ten seconds for binder mixture and fifteen seconds for surface mixtures.

D. Mixing shall be continued until a homogeneous mixture is produced in which all particles of the mineral aggregate are completely coated with asphaltic cement.

3.02 PREPARATION

A. Saw cut existing pavement to produce a clean, straight edge for new work to meet. Pavement should be sawcut at 2’-0” minimum from new curb.

B. Verify that substrate has been inspected and that substrate is hard, uniform, stable, true to gradients and elevations, and dry prior to any subbase course construction.

C. Proof roll base materials surface to check for areas requiring additional compaction and areas requiring removal and recompaction.

D. Do not begin paving work until deficient base material areas have been corrected and are ready to receive paving.

E. Weather limitations:

1. Apply tack coat when ambient temperature is above 40°F, and when temperature has been above 35°F for 12 hours immediately prior to application. Do not apply when base is wet, contains excess moisture, or during rain.

2. Construct asphaltic concrete paving when atmospheric temperature is above 40°F.

3.03 APPLICATIONS

A. Coarse Aggregate Base Course

1. Perform construction in a manner that will drain surface properly at all times, and at the same time prevent runoff from adjacent areas from draining onto base course construction.

2. Compact granular base material in 4-inch lifts with a minimum of 6 passes of a 10 ton vibratory compactor, to not less than 95% of the optimum density as determined by ASTM D1557.

B. Tack Coat

1. Apply to contact surface of previously constructed asphaltic concrete base courses or Portland cement concrete and surfaces abutting or projecting into asphaltic concrete or into asphaltic concrete pavement.

2. Apply tack coat between each lift or layer of full depth asphaltic concrete and on surface of all such bases where asphaltic concrete paving will be constructed.

3. Apply at minimum rate of 0.10 gallon per square yard of surface.

4. Allow to dry until at proper condition to receive paving.

5.

C. Asphaltic Concrete Placement

1. Place asphaltic concrete mixture on completed compacted subgrade surface, spread, and strike off. Spread mixture at following minimum temperatures:

   a. When ambient temperature is between 40°F and 50°F, mixture temp.=285°F

   b. When ambient temperature is between 50°F and 60°F, mixture temp.=280°F

   c. When ambient temperature is higher than 60°F, mixture temp.=275°F

2. Whenever possible, all pavements shall be spread by a finishing machine; however, inaccessible or irregular areas may be placed by hand methods. The hot mixture shall be spread uniformly to the required depth with hot shovels and rakes. After spreading, the hot mixture shall be carefully smoothed to remove all segregated course aggregate and rake marks. Rakes and lutes used for hand spreading shall be of the type designed for use on asphalt mixtures. Loads shall not be dumped faster than can be properly spread. Workers shall not stand on the loose mixture while spreading.

3. Place in typical strips not less than 10’-0” wide or the full path width, whichever is smaller.

4. Joints: Make joints between old and new pavements, or between successive days and work in a manner that will provide a continuous bond between adjoining work. Construction joints shall have same texture, density, and smoothness as other sections of asphaltic concrete course. Clean contact surfaces of all joints and apply tack coat.

3.04 ROLLING AND COMPACTION

A. The mixture, after being spread, shall be thoroughly compacted by rolling as soon as it will bear the weight of the rollers without undue displacement. The number, weight, and types of rollers and sequences of rolling operations shall be such that the required density and surface are consistently attained while the mixture is in a workable condition.

B. The bituminous concrete pavement shall have a minimum thickness as specified on the contract drawings and should be compacted to a minimum of 96% of the maximum unit weight as determined by the Marshall Mix Design Procedures in accordance with ASTM D-1559.

C. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

D. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling with hot material.

E. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been thoroughly compacted.

F. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained maximum density.

G. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut out such areas and fill with fresh, hot asphaltic concrete. Compact by rolling to maximum surface density and smoothness.

H. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.05 FIELD QUALITY CONTROL

A. Grade Control: Establish and maintain required lines and elevations.

B. Temperature: The Contractor shall monitor the asphaltic concrete mixture on the paver immediately prior to spreading asphalt mixture to certify that the minimum temperature requirements of this section are met. Temperature measurement shall be taken on the average of one test per 20 tons of material.

C. Thickness: In-place compacted thickness shall not be less than thickness specified on the drawings. Areas of deficient paving thickness shall receive a tack coat and a minimum 1" overlay; or shall be removed and replaced to the proper thickness, at the discretion of the Landscape Architect; until specified thickness of the course is met or exceeded at no additional expense to the Owner. Saw cut adjacent pavement to match overlay; "feathering" shall not be permitted.

D. Surface Smoothness: The Contractor shall perform testing on the finished surface of each asphalt concrete course for smoothness, using 10'-0" straightedge applied parallel with, and at right angles to centerline of paved area. These tests shall be performed under the observation of the Landscape Architect. Surfaces will not be acceptable if the following 10' straightedge tolerances for smoothness are exceeded.

1. Base Course Surface: ¼"

2. Wearing Course Surface: 3/16"

E. Check surface areas at intervals necessary to eliminate ponding areas. Remove and replace unacceptable paving as directed by the Landscape Architect.

END OF SECTION

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes exterior concrete pavement.

1.02 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blast-furnace slag.

1.03 SUBMITTALS

A. Product Data: For each type of manufactured material and product indicated.

B. Design Mixtures: For each concrete pavement mixture. Include alternate mixture designs when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

C. Samples: Concrete tint swatches provided by manufacturer.

D. Samples: Provide 2ft x 2ft concrete samples of paving material with options for custom tinting, finish and joints as required. Assume three rounds of samples will be required.

E. Qualification Data: For manufacturer.

F. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials:

1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.

G. Material Certificates: Signed by manufacturers certifying that each of the following materials complies with requirements:

1. Cementitious materials.

2. Steel reinforcement and reinforcement accessories.

3. Admixtures.

H. Field quality-control test reports.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

C. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

D. Mockups: Cast mockups of full-size sections of concrete pavement to demonstrate typical joints,

surface finish, texture, color, and standard of workmanship.

1. Build mockups in the location and of the size indicated or, if not indicated, as directed by Landscape Architect.

2. Notify Landscape Architect seven days in advance of dates and times when mockups will be constructed.

3. Obtain Landscape Architect's approval of mockups before starting construction.

4. Maintain approved mockups during construction in an undisturbed condition as a standard for judging the completed pavement.

5. Demolish and remove approved mockups from the site when directed by Landscape Architect.

E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

F. Work, materials, and paving shall conform to applicable sections of Americans with Disabilities Act (ADA) and state standards, whichever is more stringent.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.

2.02 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.

1. Use flexible or curved forms for curves with a radius 100 feet or less.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.03 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets, hot dipped galvanized finish. Fabric shall be 6x6-W2.9xW2.9 wherever fabric is indicated.

B. Galvanized Reinforcing Bars: ASTM A 767/A 767M, Class II zinc coated, hot-dip galvanized after fabrication and bending; with ASTM A 615/A 615M, Grade 60 deformed bars.

C. Plain Steel Wire: ASTM A 82, galvanized.

D. Joint Dowel Bars: ASTM A 767/A 767M, Class II zinc coated, hot-dip galvanized after fabrication and bending; with ASTM A 615/A 615M, Grade 60 plain steel bars. Cut bars true to length with ends square and free of burrs.

E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening

reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from galvanized steel wire, plastic, or precast concrete of greater compressive strength than concrete, and as follows:

1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

F. Zinc Repair Material: ASTM A 780.

2.04 CONCRETE MATERIALS

A. Cementitious Material: Use one of the following cementitious materials, of the same type, brand, and source throughout the Project:

1. Portland Cement: ASTM C 150, Type I/II, gray or white as required to produce color selected by Architect. Supplement with the following:

a. Fly Ash: ASTM C 618, Class F.
b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, Class 4S coarse aggregate, uniformly graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar pavement applications and service conditions using similar aggregates and cementitious materials.

1. Maximum Coarse-Aggregate Size: 3/4 inch nominal.

2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

2. Retarding Admixture: ASTM C 494/C 494M, Type B.

3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.

6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.05 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

2.06 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

B. Color Pigment: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, free of carbon black, nonfading, and resistant to lime and other alkalis.

1. Available Manufacturers:
   a. Bayer Corporation.
   b. Davis Colors.
   c. Scofield, L. M.Company.
   d. Solomon Colors.

2. Color: As selected by Landscape Architect from manufacturer's full range.

C. Chemical Surface Retarder: Water-soluble, liquid-set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch.

2.07 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.

1. Use a qualified independent testing agency for preparing and reporting proposed concrete mixture designs for the trial batch method.

B. Proportion mixtures to provide normal-weight concrete with the following properties:

1. Compressive Strength (28 Days): 3500 psi.

2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.

3. Slump Limit: 4 inches, plus or minus 1 inch.

C. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:

1. Air Content: 6 percent plus or minus 1.5 percent for 3/4-inch nominal maximum aggregate size

D. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

E. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing admixture, high-range, water-reducing admixture, high-range, water-reducing and retarding admixture, or plasticizing and retarding admixture in concrete, as required, for placement and workability.

2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

F. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 requirements as follows:

1. Fly Ash or Pozzolan: 25 percent.

2. Ground Granulated Blast-Furnace Slag: 50 percent.

3. Combined Fly Ash or Pozzolan, and Ground Granulated Blast-Furnace Slag: 50 percent, with fly ash or pozzolan not exceeding 25 percent.

G. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup. Color additives to be selected by Landscape Architect in the sample review process.

2.08 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.

1. When air temperature is between 85 deg F and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

B. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding, in presence of geotechnical engineer. Use proof rolling equipment as directed by geotechnical engineer.

C. Proceed with concrete pavement operations only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.

3.02 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.03 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.04 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

E. Zinc-Coated Reinforcement: Use galvanized steel wire ties to fasten zinc-coated reinforcement. Repair cut and damaged zinc coatings with zinc repair material.

3.05 JOINTS

A. General: Form construction, isolation, and contraction joints true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.

1. Continue steel reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.

2. Provide tie bars at sides of pavement strips where indicated.

3. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

1. Locate expansion joints at intervals of 50 feet, unless otherwise indicated.

2. Extend joint fillers full width and depth of joint.

3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.

4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.

5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.

6. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

D. Control and Contraction Joints: are to be sawn. Saw joints for a depth equal to at least one-fourth of the concrete thickness, as follows:

1. Sawn joints – stage the pavement sawing process to prevent saw dust from adhering to recently treated concrete surfaces.

2. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.06 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast in. Notify other trades to permit installation of their work.

B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.

C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

E. Do not add water to concrete during delivery or at Project site.

F. Do not add water to fresh concrete after testing.

G. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

H. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.

I. Screed pavement surfaces with a straightedge and strike off.

J. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

K. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.

2. Do not use frozen materials or materials containing ice or snow.

3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mix designs.

L. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.07 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

3.08 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

D. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:

1. Moist Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3.09 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:

1. Elevation: 1/4 inch.

2. Thickness: Plus 3/8 inch, minus 1/4 inch.

3. Surface: Gap below 10-foot- long, unleveled straightedge not to exceed 1/4 inch.

4. Lateral Alignment and Spacing of Tie Bars and Dowels: 1 inch.

5. Vertical Alignment of Tie Bars and Dowels: 1/4 inch.

6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch.

7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches.

8. Joint Spacing: 3 inches.

9. Contraction Joint Depth: Plus 1/4 inch, no minus.

10. Joint Width: Plus 1/8 inch, no minus.

3.10 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain at least 1 composite sample for each 100 cu. yd. or each 5000 sq. ft. or fraction thereof of each concrete mix placed each day, whichever produces the greater number of tests.

   a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.

3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.

4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.

5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample. Mold one additional cylinder for concrete placed during cold and hot temperature conditions and cure cylinder on site under same conditions as concrete represented by sample.

6. Compressive-Strength Tests: ASTM C 39/C 39M; test 1 specimen at 7 days and 2 specimens at 28 days.

   a. A compressive-strength test shall be the average compressive strength from 2 specimens obtained from same composite sample and tested at 28 days.

C. Strength of each concrete mix will be satisfactory if average of any 3 consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

D. Test results shall be reported in writing to Landscape Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Landscape Architect.

G. Remove and replace concrete pavement where test results indicate that it does not comply with specified requirements.

H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.11 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

B. Drill test cores, where directed by Landscape Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy adhesive.

C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

SECTION 32 14 00

UNIT PAVING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Installation of masonry unit paving
B. Subgrade preparation
C. Granular base installation
D. Bedding and jointing aggregates

1.02 RELATED SECTIONS

A. Section 32 32 00 – Cast-in-Place Concrete

1.03 SUBMITTALS

A. Comply with the requirements of Section 01 33 23 – Submittal Procedures and as modified below.
B. Product Data: Submit manufacturer's name, specifications and installation instructions for each item specified.
C. Furnish samples of each unit paver type to be installed as part of the project. Upon request of the Project Designer, submit samples demonstrating the manufacturer's full range of colors available.
D. Quality Control Submittals
    1. Qualifications Certification: Submit written certification or similar documentation signed by the applicable subcontractor, prime contractor and/or manufacturer (where applicable) indicating compliance with the "Qualifications" requirements specified below in the "Quality Assurance" section of this specification.
    2. Experience Listing: Submit a list of completed projects using the products proposed for this project, including owner's contact information and telephone number for each project, demonstrating compliance with applicable "Installer Qualifications" requirements specified in the "Quality Assurance" section of this specification.

E. Closeout Procedures: Comply with the requirements of Division 01 General Requirements.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Experienced firm with not less than five successfully completed unit paver installations using the products specified.

B. Single Source Responsibility: Obtain each color, type and variety of unit paver from a single source. Materials shall be available and be consistent in quality, appearance and physical properties without delaying the progress of the work.

C. Field Constructed Mock-up: Construct a full width, minimum 15 lineal foot long mock-up for each unit paving pattern required as part of the project and obtain the Project Designer's approval prior to beginning unit paving installation work.

D. Regulatory Requirements: Obtain written permission from applicable agencies prior to the start of construction. Submit one copy of the permit as specified in "Submittals-Quality Control Submittals" above.

1.05 PROJECT CONDITIONS

A. Field Measurements: Prior to commencing the work specified in this section, verify the accuracy of layout and grading. Verify that all subgrade and base course aggregate conditions are as specified.

B. Cold Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost.

C. Base or pavers shall not be installed during heavy rain or snowfall.

D. No concrete pavers shall be laid over frozen materials or on an improperly prepared base.

E. At the end of each work period, protect unrestrained edges with plywood or similar materials.

1.06 SEQUENCING AND SCHEDULING

A. Proceed with and complete unit paver installation as rapidly as portions of the site become available, working within seasonal limitations for the work required.

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide brick from the following manufacturers:
- Glen-Gery
- Belden Brick Company
- General Shale

Brick type, color, finish, etc. to be selected from the manufacturers during the sample review process.

B. Brick pavers shall be 4" x 8" x 2 1/4" nominal or as shown on the Drawings. They are to be manufactured from extruded fireclay or shale and shall be fired to produce a wire cut, dense paver with an average absorption of less than 4% (in a 24-hour cold water absorption test) and have an average compressive strength of not less than 8,000 lbs. per square inch for any five bricks tested. The pavers must be capable of withstanding at least the equivalent of 100 cycles of freeze - thaw conditions. The permissible tolerance for individual pavers shall conform to ASTM Designation C-902-79a. Color to be determined.

B. Bedding Sand: Fine, dry, sharp, washed concrete sand, free of foreign material conforming to ASTM C 33. The sand shall be of uniform moisture content when screeded in the range of 4-8%. Protect sands from rain and snow when stockpiled on site for future use. Gradations for the bedding sand shall conform to the following requirements:

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
3/8 inch	9.5	100
No. 4	4.75	95-100
No. 8	2.36	80-100
No. 16	1.18	50-85
No. 30	0.500	25-60
No. 50	0.300	20-30
No. 100	0.150	5-15
No. 200	0.075	0-10

D. Jointing Sand: Fine, dry, sharp, washed concrete sand, conforming to ASTM C 144. The sand shall be free of organics and soluable salts or contaminants likely to cause efflorescence. Gradations for the jointing sand shall conform to the following gradation requirements:

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
No. 4	4.75	100
No. 8	2.36	95-100
No. 16	1.18	70-100
No. 30	0.500	40-75
No. 50	0.300	20-40
No. 100	0.150	10-25
No. 200	0.075	0-10

PART 3 EXECUTION

3.01 EXAMINATION

A. Installer Verification of Conditions: Examine conditions under which unit pavers are to be installed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.

1. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 PREPARATION

A. Where unit pavers will be installed over native subgrade, strip the site of the unit paver installation of all topsoil, organic materials, oversized rocks debris and unstable or unconsolidated materials to the grades indicated on the Contract Documents.

1. All sub drainage or underground services within the pavement area must be completed in conjunction with the subgrade preparation and prior to the commencement stone base construction.
2. Shape and proof-roll the prepared subgrade surface to check for unstable areas and areas requiring additional compaction. Do not proceed with the installation until deficient subgrades have been corrected and are ready to receive the sub-base for the unit pavers. The subgrade shall be compacted to at least 92% density per ASTM D 1557.
3. Install drainage fabric similar to. Refer to specification section 310000 Earthwork for additional information on drainage fabric installation.

3.03 INSTALLATION

A. Base Stone Installation: Where required, place specified RCA Fill layer over drainage fabric lined and compacted subgrade in maximum 8" depth compact lifts to achieve the finished thicknesses

as indicated on the Contract Documents.

B. Where indicated on drawings, install concrete slab base – refer to section 323200.

C. Where required, install edge restraints as indicated on the Contract Documents.

D. Bedding Sand Placement
1. Fill all weeps completely to top with compacted bedding sand to ensure no voids are left in weeps.
2. Spreading: Place sand for the leveling course over the concrete or compacted granular base to a depth of 1 – 1¼", taking care that the moisture content remains constant and that the density is loose and constant until the unit pavers are set and compacted. Do not use frozen or saturated sand for leveling. Do not use sand for filling in irregularities in the base material; base material must be added and compacted.
3. Screeding: The spread sand shall be carefully maintained in a loose condition and protected against precompaction by traffic or rain prior to and following screeding. The bedding sand shall be lightly screeded in a loose condition to the predetermined depth. Under no circumstances shall the sand be screeded in advance of the laying face to an extent which paving will not be completed on that day. Any screeded sand which is precompacted prior to the laying of unit pavers shall be brought back to profile in a loose condition. Neither pedestrian nor vehicular traffic shall be permitted on the screeded sand.

E. Unit Paver Installation

1. Pavers with excessive chips, cracks, voids discolorations or other defects shall not be installed.
2. Pattern: The unit pavers shall be set in the approved pattern as noted on the Contract Documents.
3. Color Blending: Paving units shall be installed from a minimum of three bundles simultaneously drawing the paver vertically rather than horizontally.
4. Alignment: String lines or chalk lines on bedding sand shall be used to hold all pattern lines true.
5. Cutting: Gaps at the edge of the paving surface shall be filled with manufactured edge pavers or with pavers cut to fit. Cutting should be accomplished to leave a clean edge to the traffic surface using a mechanical hydraulic guillotine cutter or masonry saw.
6. Sweeping Clean: Upon completion of cutting, the area must be swept clean of all debris to facilitate inspection and to ensure pavers are not damaged during compaction.
7. Inspection of Installed Pavers: After sweeping and prior to compaction, the paved area must be inspected to ensure satisfactory color blending. Pavers shall be moved as required to achieve good color distribution.

F. Initial Compaction of Unit Pavers: After inspection of the surface, the unit pavers shall be compacted to achieve consolidation and brought to design elevations and profiles by not less than three passes of a low amplitude, high frequency plate compactor. Compaction shall be accomplished by the use of a plate compactor capable of a minimum 5,000 pound compaction force. Initial compaction shall proceed as close as possible following the installation of the paving units and prior to acceptance of any traffic or application of jointing sand. Compaction shall not be attempted within three feet of an unrestrained edge.

G. Paver Inspection: Any unit pavers which are structurally damaged during compaction shall be immediately removed and replaced.

H. Jointing Sand Installation: Jointing sand shall be spread as soon as practical over the pavement after the initial compaction has been completed. The sand shall be broomed to fill all joints, excess material shall be removed from the pavement surface.

I. Final Compaction of Unit Pavers: Upon completion of installation of jointing aggregate on the paver surface and the area has been swept clean, final compaction of the unit pavers shall be accomplished by not less than two passes of the plate compactor. Final compaction should proceed as closely as possible following the installation of the jointing sand and prior to the acceptance of any traffic.

1. A protective pad is required when doing the final paver compaction.

J. Tolerances in Surface Profile

1. All surfaces shall be true to the lines, levels, grades, thickness and cross sections as shown on the Contract Documents.
2. All pavers shall be finished to lines and levels to ensure positive drainage at all drainage outlets and channels.
3. The paver surface shall not deviate by more than 1 inch in 10 feet from a straight edge laid in any direction.

K. Once unit paver installation is completed and accepted, apply adhesive and sealant product on completed paver installation per the manufacturer's strict installation instructions.

1. Take special precautions to protect all adjacent work during sealant installations.

3.04 ADJUSTING AND CLEANING

A. Sweep clean all paved areas of excess aggregates, dirt or debris.

B. Pick up and remove from the site all surplus materials, equipment and debris resulting from the work.

C. Repairs and Protection of Unit Pavers

1. Repair or replace broken or defective unit pavers as directed by the Project Designer.
2. Protect unit pavers from damage until acceptance of the pavement construction.

END OF SECTION

SECTION 323200 – CAST-IN-PLACE CONCRETE

PART 1—GENERAL

1.01 DESCRIPTION

A. This Section includes the following:

1. Requirements for concrete cast-in-place on the site.

2. Cast-in-place site structures, foundations and footings.

3. Cast-in-place concrete slabs below pavers.

1.02 REFERENCE STANDARDS

A. References herein are made in accordance with the following abbreviations and all work under this Section shall conform to the latest editions as applicable.

American Concrete Institute (ACI)

ACI 305R -	Hot Weather Concreting
ACI 306R -	Cold Weather Concreting
ACI 316R -	Recommendations for Construction of Concrete Pavements and Concrete Bases

American Society for Testing and Materials (ASTM)

ASTM 185 -	Welded Wire Steel Fabric for Concrete Reinforcement
ASTM 615 -	Deformed and Plain Billot Steel Bars for Concrete Reinforcement
ASTM C31M	Standard Practice for Making and Curing Concrete Test Specimens in the Field.
ASTM C33 -	Concrete Aggregates
ASTM C94 -	Ready-Mixed Concrete
ASTM C143 -	Slump of Portland Cement Concrete
ASTM C150 -	Portland Cement
ASTM C171 -	Sheet Materials for Curing Concrete
ASTM C231 -	Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260 -	Air Entraining Admixtures for Concrete
ASTM C309 -	Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C494 -	Chemical Admixtures for Concrete

Concrete Reinforcing Steel Institute (CRSI)
Manual of Standard Practice.

Americans with Disabilities Act and State Regulations

1.03 QUALITY ASSURANCE

A. Work and materials for construction of the cement concrete walks shall conform to ACI 316R. Other cast-in-place concrete shall conform to ACI 301.

B. Work, materials, and surfaces shall conform to applicable sections of Americans with Disabilities Act (ADA) and state standards, whichever is more stringent.

1.04 SUBMITTALS

A. Description of methods and sequence of placement for each type of specially-finished concrete.

B. Samples

1. 2ft x 2ft samples of concrete aggregate, tinting, finish and joint options are to be provided for architect approval at exposed concrete surfaces. Multiple samples may be required.

2. Provide sample mock-up of wall, curb or other structure section.

C. Manufacturer's product data for the following:

1. Form release agent.

2. Concrete coloring additive.

3. Preformed joint filler.

4. Concrete reinforcement specification data from manufacturer.

5. Stamp and Imprinting tools, manufacturer’s literature.

1.05 TESTING

A. The Owner may employ an independent testing laboratory to inspect and test concrete paving and other cast-in-place concrete work.

B. When requested, Contractor shall prepare test specimens in accordance with ASTM C31M, standard cylinder size 4-inch x 8 inch.

C. Testing of materials and installed work may occur at any time during progress of the work. Rejected materials and installed work shall be removed and replaced.

PART 2—PRODUCTS

2.01 STEEL REINFORCEMENT

A. Steel reinforcing bars shall conform to ASTM A615, Grade 60, deformed.

1. Bars employed as dowels shall be hot-rolled plain rounds.

B. Steel wire: ASTM A82, plain cold drawn steel.

C. Welded wire fabric reinforcement shall conform to the applicable requirements of ASTM A185. Fabric reinforcement shall be furnished in flat sheets. Fabric reinforcement in rolls will not be permitted.

D. Supports for Reinforcement: Bolsters, chairs, and other devices for spacing, supporting, and fastening reinforcing bars, and welded wire fabric in place shall be wire bar-type supports complying with CRSI specifications.

1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.

2. For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, Class 1).

2.02 PORTLAND CEMENT CONCRETE

A. Portland cement concrete shall:

1. Have a maximum water cement ratio of 0.45 conforming to ACI 316R.

2. Be Air-entrained type conforming to ASTM C94. Air content by volume shall be 6 percent + 1 percent, and shall be tested in accordance with ASTM C260.

3. Be placed with a slump not less than 3 inches nor greater than 4 inches, determined in accordance with ASTM C143.

4. Use cement conforming to ASTM C150, Type I or II. Only one color of cement, all of the same manufacturer, shall be used for the work.

5. Use fine and coarse aggregates conforming to ASTM C33.

6. Contain a water reducing agent to minimize cement and water content of the concrete mix at the specified slump. Water reducing agent shall conform to ASTM C494, Type A.

7. Contain no calcium chloride or admixtures containing calcium chloride shall be added to the concrete. No admixtures other than those specified shall be used in the concrete without the specific written permission of the Landscape Architect in each case.

2.03 CONCRETE AGGREGATES

A. Provide in conformance with ASTM C33.

B. Fine aggregates in conformance with ASTM C33, part 6.

C. Coarse aggregates in conformance with ASTM C33, parts 9 thru 11 and tables 2 and 3, with the following Class designations:

1. 4S – For pavements, driveways, curbs, walkways, sidewalks, and retaining walls that are exposed to the weather.

D. For benches and walls on the project the concrete materials must be fine, uniformly graded aggregate consistent with smooth finished architectural concrete. Maximum nominal aggregate size of 3/4" for coarse aggregate and fine aggregate of natural or manufactured sand from the same source.

2.04 CURING MATERIALS FOR CONCRETE

A. Curing shall be accomplished by the following methods:

1. Moist curing with burlap covering.

2. Curing paper, nonstaining, fiber reinforced laminated Kraft bituminous product conforming to ASTM C171. Four mil polyethylene sheeting may be substituted for curing paper.

3. Curing compound, a resin-base, white pigmented compound conforming to ASTM C309, Type 2.

2.05 EXPANSION JOINTS

A. Expansion joint filler shall be preformed, nonbituminous type conforming to ASTM D1752, Type II, similar to Sealtight Cork Expansion Joint Filler, manufactured by W.R. Meadows, Inc., Elgin, IL 60120, or approved equivalent.

1. Premolded filler shall be one piece for the full depth and width of the joint.

B. Smooth dowel shall be a stainless steel dowel bonded at one end and operating in smooth close fitting sleeve (of same material) at the other.

2.06 CONTROL JOINTS

A. Joint filler to be polyethylene foam with manufacturer's recommended sealant.

2.07 FORMS

A. Cylindrical Forms: Sonotube Fibre Forms, wax-impregnated strippable forms manufactured by Sonoco Products Company, General Products Division, ABS or PVC plastic reusable forms, or approved equivalent.

B. Forms for Exposed Finish: Plywood, metal, metal-framed plywood faced, or other acceptable panel materials. Plywood shall be APA Ref. 1 B-B (Concrete Form), Class I Exterior Grade plywood or B-B or A-C Class I high density overlay concrete form plywood. Form work materials shall produce smooth, continuous, straight and level surfaces.

C. Forms for Unexposed Finish: Plywood, lumber or metal, with lumber dressed on at least two edges and one side.

D. Form Ties: prefabricated, adjustable length galvanized steel snap-off ties, with brackets, cones, cornerlocks and other accessories as necessary.

E. Form Release Agent: Commercial formulation compounds that will not bond with, stain or adversely affect concrete.

2.08 RELATED MATERIALS

A. Color Pigment: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, free of carbon black, non-fading, and resistant to lime and other alkalis.

1. Available Manufacturers:

a. Bayer Corporation
b. Davis Colors
c. Scofield, L. M. Company
d. Solomon Colors

2. Color: As selected by Landscape Architect from manufacturer's full range.

PART 3—EXECUTION

3.01 PREPARATION OF SUBGRADE

A. The subgrade of areas shall be graded and compacted as specified in Section 02200, Earthwork.

B. Excavation required in the subgrade shall be completed before fine grading and final compaction of subgrade are performed. Where excavation must be performed in completed subgrade, subbase, base, or pavement, subsequent backfill and compaction shall be performed as required by the Engineer and as specified in Section 02200, Earthwork.

C. Materials shall not be stored or stockpiled on subgrade.

3.02 INSTALLING EMBEDDED ITEMS

A. General: Set and build into formwork the anchorage devices and other embedded items required for work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached.

B. Forms for Slabs: Set edge forms, bulkheads, and intermediate screen strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

3.03 PREPARING FORM SURFACES

A. Coat contact surfaces of forms with an approved, nonresidual, low-VOC form-coating compound before placing reinforcement.

3.04 CONCRETE PLACING

A. Equipment, methods of mixing and placing, and precautions to be observed as to weather, and condition of base shall meet the requirements of ACI 316R.

B. Form tie locations that will remain visible are to be reviewed with Landscape Architect.

C. The Landscape Architect shall be notified of scheduled concrete placement sufficiently in advance of start of operation to allow preliminary inspection of the work, including subgrade, forms, and reinforcing steel.

D. Work shall not be performed during rainy weather or when temperature is less than 40°F (4.4°C).

E. Adjacent work shall be protected from stain and damage. Damaged and stained areas shall be replaced or repaired to equal their original conditions.

F. Existing concrete, earth, and other water-permeable material against which new concrete is to be placed shall be thoroughly damp when concrete is placed. There shall be no free water on surface.

G. Concrete which has set or partially set, before placing shall not be used. Retempering of concrete will not be permitted.

H. Concrete shall be thoroughly vibrated, or otherwise consolidated to secure a solid and homogeneous mass, thoroughly worked around reinforcement and into corners of forms.

I. When joining fresh concrete to concrete which has attained full set, latter shall be cleaned of foreign matter, and mortar laitance shall be removed by chipping and washing. Clean, roughened base surface shall be saturated with water, but shall have no free water on surface. A coat of 1:1 cement-sand grout, approximately 1/8 inch thick, shall be well scrubbed into the thoroughly dampened concrete base. New concrete shall be placed immediately, before grout has dried or set.

3.05 FINISHING

A. Concrete surfaces shall be screed and finished true to line and grade, and free of hollows and bumps. Surface shall be dense and smooth.

1. Finished concrete surfaces shall be wood-floated and steel troweled, or broom finished, to a uniform surface. Surface shall not deviate more than 1/8 inch in 10 feet.

B. Immediately following finishing operations, arises at edges and both sides of expansion joints shall be rounded to a 1/4 inch radius. Control joints to be sawcut shall be 1/5 to 1/4 the thickness of the concrete in depth.

C. Where finishing is performed before end of curing period, concrete shall not be permitted to dry out, and shall be kept continuously moist from time of placing until end of curing period, or until curing membrane is applied.

F. Sidewalks, walkways, accessible routes, and ramps shall be constructed and finished in accordance with the Americans with Disabilities Act, and State and Local requirements.

G. Architectural concrete finish of visible surfaces at walls and benches shall be smooth form finish according to ACI 301-96 with the final step a smooth rubbed finish.

3.06 CURING

A. Concrete shall be kept continuously damp from time of placement until end of specified curing period or cured by other methods. Water shall not be added to surface during floating and troweling operations, and not earlier than 24 hours after concrete placement. Between finishing operations, surface shall be protected from rapid drying by a covering of waterproofing paper. Surface shall be damp when the covering is placed over it, and shall be kept damp by means of a fog spray of water, applied as often as necessary to prevent drying, but not sooner than 24 hours after placing concrete. None of the water so applied shall be troweled or floated into surface.

B. Concrete surfaces shall be cured by completely covering with curing paper or application of a curing compound.

1. Concrete cured using waterproof paper shall be completely covered with paper with seams lapped and sealed with tape. Concrete surface shall not be allowed to become moistened between 24 and 36 hours after placing concrete. During curing period surface shall be checked frequently, and sprayed with water as often as necessary to prevent drying, but not earlier than 24 hours after placing concrete.

2. Concrete cured with a curing compound shall have the compound applied at a rate of 200 square feet per gallon, in two applications perpendicular to each other.

3. Curing period shall be seven days minimum.

C. Only if additional protection is absolutely required, the surface should remain uncovered after the seven day period for at least 4 days, after which time new and unwrinkled non-staining reinforced waterproof Kraft curing paper may be used.

3.07 EXPANSION JOINTS

A. Expansion joints shall be 1/2 inch wide and located where shown on the drawings. Expansion joints shall be troweled in the concrete to required width with preformed joint filler in place. Joint filler shall extend the full depth of the slab and full length of the expansion joint.

1. For concrete walks, pavements, and pads, depth of joint filler shall be placed to form a 1-1/4 inch deep recess for sealant and backer rod below finished concrete surface.

2. Use of multiple pieces to make up required depth and width of joint will not be permitted.

3.08 CONSTRUCTION JOINTS

A. Construction joints shall be placed whenever placing of concrete is suspended for more than 30 minutes.

1. Butt joint with dowels or thickened edge joint shall be used if construction joints occur at control joint locations.

2. Keyed joints with tiebars shall be used if the joint occurs at any other location.

3.09 CONTROL JOINTS

A. Control joints shall be sawcut into the concrete slab in pattern as shown on the Drawings. If no pattern is shown, pattern shall result in square shape with a maximum area of 36 square-feet.

B. Scoring shall cut into slab surface at least 3/4 inch, but in no case not less than 20 percent of slab depth.

3.10 COLD WEATHER CONCRETING

A. Materials for concrete shall be heated when concrete is mixed, placed, or cured when the mean daily temperature is below 40°F or is expected to fall to below 40°F within 72 hours. the concrete, after placing, shall be protected by covering, heat, or both.

B. Details of handling and protecting of concrete during freezing weather shall be subject to the approval and direction of the Engineer. Procedures shall be in accordance with provisions of ACI 306R.

3.11 HOT WEATHER CONCRETING

A. Concrete just placed shall be protected from the direct rays of the sun and the forms and reinforcement just prior to placing shall be sprinkled with cold water. Every effort shall be made to minimize delays which will result in excessive mixing of the concrete after arrival on the site.

B. During periods of excessively hot weather (95°F., or above), ingredients in the concrete shall be cooled with cold mixing water to maintain the temperature of the concrete at permissible levels in accordance with the provisions of ACI 305. Any concrete with a temperature above 95°F., when ready for placement, will be rejected.

D. Temperature records shall be maintained throughout the period of hot weather giving air temperature, general weather conditions (calm, windy, clear, cloudy, etc.) and relative humidity. Records shall include checks on temperature of concrete as delivered and after placing in forms. Data should be correlated with the progress of the work so that conditions surrounding the construction of any part of the structure can be ascertained.

3.12 PROTECTION OF CONCRETE SURFACES

A. Concrete surfaces shall be protected from traffic or damage until surfaces have hardened sufficiently.

END OF SECTION

SECTION 329200

TURF AND GRASSES AND FINE GRADING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. The General Documents, as listed in the Table of Contents, and applicable parts of Division 1, GENERAL REQUIREMENTS, shall be included and made a part of this Section.

B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.

1.02 SCOPE OF WORK

A. The work of this Section includes, but is not limited to, the following:
1. Soil preparation and fertilization
2. Spreading of loam and fine grading
3. Seeding of lawns
4. Sod installation
5. Protecting and maintaining completed work
6. Protecting and maintaining existing trees, plants, and landscaping indicated to remain

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. The General Conditions of the Contract and Division I, General Requirements.

B. Examine all Drawings and all other sections of the Specifications for requirements therein affecting the work of this trade.

1.04 QUALITY ASSURANCE/DEFINITIONS

A Analysis of Materials: For each type of packaged material required for the work of this Section, provide complete analysis by a recognized laboratory made in strict compliance with the standards of the Association of Official Agricultural Chemists.

B. Loam: For loam imported to this site, provide written certification stating the source of the material and certified soil analysis.

1.05 TESTS

A. Soil Tests: Make mechanical and chemical analysis of soil materials, including loam brought to the site and existing loam already on site, as directed by the Landscape Architect. Make tests for sieve size, pH, soluble salts, nitrate nitrogen, ammonium nitrogen, phosphorus, potassium, calcium, aluminum and all other important characteristics. Provide certified written reports.

B. Testing Agency: Employ at Owner's expense an independent testing agency acceptable to the Landscape Architect to perform tests and certifications indicated. Tests shall be made in strict compliance with the standards of Official Agricultural Chemists.

1.06 PROJECT CONDITIONS

A. Planting Seasons: Work only within seasonal limitations for proper planting:
Lawns: Spring Season: April 15 to June 1. Fall Season: August 15 to September 15.

B. Water: If on-site water is unavailable in sufficient quantities, provide as needed water from off-site sources free from impurities injurious to vegetation. Provide all hoses and equipment as needed to distribute water to area of landscape work and areas needing watering. Provide water tank trucks as needed.

1.07 ACCEPTANCE AND MAINTENANCE

A. Request for Acceptance: In writing, request Landscape Architect's inspection for acceptance at least 10 days in advance of preferred inspection date. Do not request inspection for acceptance until work is 100% complete (not including maintenance) and in compliance with the Contract requirements.

1. Partial Acceptance: Acceptance of partial areas or portions of the total work may be granted, at the Owner's option, if the area to be inspected for acceptance is large, well defined, and easily described. The Owner and Landscape Architect are not obligated to provide partial acceptance of the work.

B. Lawn Maintenance: Provide complete maintenance and service as required to promote and maintain healthy growth including, without limitation, watering, fertilizing, weeding, mowing, trimming, rolling, regrading, fallen leaf removal, treating for insects and disease, and other operations and work. Mow sod as specified in sod lawns in this specification section.

1. Length of Maintenance Required: Begin maintenance immediately after installation, and completely maintain lawns for 60 days or until date of final acceptance, whichever is later in time.

2. Acceptance Criteria: Create an acceptable lawn which is defined to mean a uniform, smooth lawn with well established, close stands of grass, with no bare or dead spots over 6" in maximum dimension, with not more than one bare spot for each square yard of lawn area, and with an average of at least 6 thriving grass plants per square inch. To be acceptable, the lawn shall be free from weeds, disease, and detrimental insect infestation.

1.08 WARRANTY

A. Warranty: Provide written warranty agreeing to remove and replace work which exhibits defects in materials or workmanship for the specified periods. "Defects" is defined to include, but is not limited to, death, unsatisfactory growth, disease, density, abnormal color, failure to thrive, and other unsatisfactory characteristics. Lawns which die or suffer significant dieback as determined by the Landscape Architect shall be replaced by the Contractor at his or her own expense. Planting of replacements shall be governed by the Seeding and Sodding specifications, and the replacements shall also be guaranteed for a period of one year after planting.

1. Replacement Planting Seasons: Reseeding and resodding for replacement and warranty work shall comply with the Planting Seasons specified herein.

2. Owner's Responsibilities and Warrant Exclusions: After completion of the Contractor's maintenance responsibilities, the Owner is responsible for maintaining the work in reasonable compliance with the Contractor's maintenance instructions. The Contractor's warranty shall exclude problems due to improper maintenance, inadequate maintenance, or vandalism. The Contractor shall make periodic visits to the site during the warranty period to determine if improper or inadequate maintenance or vandalism is adversely effecting warranteed lawn. The Contractor shall notify the Owner in writing of his/her findings which may adversely effect the warranteed lawn.

3. Warranty Period for Lawns: One year from date of acceptance.

PART 2 – PRODUCTS

2.01 LAWN SEEDING AND SODDING

A. Lawn seed shall be 30% Kentucky Bluegrass, 50% Creeping Red Fescue, and 10% Manhattan Perennial Ryegrass. Seed mixture shall be fresh, clean, new crop seed, and in no case shall the weed seed content exceed 1% by weight. The seed shall be furnished and delivered in new, clean, sealed, and properly labeled containers. All seed shall comply with Federal and State seed laws.

Submit manufacturer's Certificates of Compliance. Seed which has become moldy, wet, or otherwise damaged shall not be accepted.

B. Seed may be mixed by an approved method on the site, or may be mixed by a dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers which shall bear the dealer's guaranteed analysis. If the seed is mixed by a dealer, the Contractor shall furnish the Landscape Architect the dealer's guaranteed statement of the composition of the mixture.

C. Grass Sod: Provide strongly rooted, mature, vigorous, healthy, commercially grown grass sod not less than 2 years old and free of weeds, insects, diseases, stone, other grasses, and other deleterious matter. Sod shall be predominantly bluegrass containing an admixture of chewings and/or red fescue grasses for shady locations. Kentucky bluegrass shall contain two and preferably three of the following improved strains such as Fylking, Baron, Warren A-20, Warren A-34, or Pennlawn. Pure Kentucky bluegrass is unacceptable.

1. Stripping: Provide sod machine cut to ¾" ± ¼" thickness, excluding top growth and thatch. Provide only non-dormant, viable sod in uniform sized pads. Sod must be capable of supporting its own weight when hand held vertically within the top 10%. Roll or fold sod prior to lifting and handle in a manner to prevent tearing, breaking, drying, or any other damage. Deliver sod to site and begin installation within 36 hours after stripping. Contractor shall be responsible for protection of unplanted sod from heat and wind. Soil on sod pads shall be kept moist at all times.

2.02 MULCH FOR SEEDING

A. Mulch for seeding shall be wood cellulose fiber mulch.

2.03 WATERING

A. Water, hose and other watering equipment required for the work shall be furnished by the Contractor. Water shall be free from impurities injurious to vegetation.

2.04 LOAM

A. Existing Loam: Stockpiling of existing loam is specified in Site Clearing and Earthwork sections. Existing loam shall meet the requirements of “additional loam,” as specified herein and shall be tested to determine if soil amendments are required.

B. Additional Loam: If stockpiled loam quantity is insufficient, provide loam which is a "fine sandy loam" or a "sandy loam" determined by mechanical analysis and based on the "U.S.D.A. classification system." It shall be of uniform composition, without admixture of subsoil. Loam shall have an acidity range of pH 5.8 to pH 7.0 and shall contain not less than 4% nor more than 10% organic matter as determined by the loss of ignition of oven-dried samples. Provide loam which is fertile, friable, natural loam reasonably free from subsoil, clay lumps, brush, litter, roots, stones over 3/4", and other foreign materials. Provide loam from a local source with a well drained site and with loam depth of at least 4" which has never been previously stripped and has a history of satisfactory vegetative growth.

2.05 SOIL AMENDMENTS AND MISCELLANEOUS MATERIALS

A. Soil Amendments: Provide the following soil amendments where necessary to meet loam specifications:

1. Lime: Provide natural dolomitic limestone containing not less than 85% of total carbonates with a minimum of 30% magnesium carbonates and graded so that 90% passes no. 20 sieve and not less than 50% passes no. 100 sieve.

2. Humus: Provide natural humus, reed peat, or sedge peat, free from excessive amounts of zinc, low in wood content, free from hard lumps and in a shredded or granular form. According to the methods of testing of A.O.A.C, latest edition, the acidity range shall be within pH 5.5 to 7.5, and the organic matter shall be not less than 85% as determined by

loss on ignition. The minimum water absorbing ability shall by 200% by weight on an oven-dry basis.

3. Superphosphate: Provide soluble mixture of treated minerals having at least 20% available phosphoric acid.

4. Manure: Proved well rotted, unleached manure containing not more than 25% by volume of straw, sawdust or other bedding materials and containing no ingredients harmful to plants.

5. Fertilizer: Provide complete neutral pH commercial fertilizer for plants with not less than 10% total nitrogen, 6% available phosphorous, and 4% soluble potash or other percentages as recommended by soil analysis. The components for seed lawns shall be 12% total nitrogen, 12% available phosphorus, and 12% soluble potash or other percentages as recommended by soil analysis. Commercial fertilizer shall be a product complying with the State and Federal fertilizer laws. Deliver to the site in the original unopened containers which shall bear the manufacturer's certificate of compliance covering analysis which shall be furnished to the Landscape Architect. At least 50% by weight of the nitrogen content shall be derived from organic materials.

6. Bonemeal: Provide finely ground commercial raw bone meal having at least 1% nitrogen and at least 23% phosphoric acid.

B. Bark Mulch: Provide partially decomposed minimum six month aged finely shredded pine bark mulch with dark brown color and free of excessive fine particles, stringy material, and chunks of wood thicker than ¼". Provide bark mulch approved by the Landscape Architect.

C. Anti-Erosion Mulch: Provide clean, weed-free, seed-free straw or hay approved by the Landscape Architect.

D. Anti-Desiccant: Provide emulsion type, film forming agent designed to permit vapor transmission but retard excessive moisture loss. Provide "Wilt-Pruf" or Landscape Architect approved equal. Use anti-desiccant only with the approval of the Landscape Architect.

PART 3 - EXECUTION

3.01 PLACING LOAM, FINE GRADING AND LAWNS

A. Loaming: Loosen subgrade and existing loam areas by discing or rototilling to minimum depth of 4". Remove stones greater than 2" and all rubbish and debris. Place loam in two equal lifts mixing first application into loosened subgrade then place second lift to bring loam after settling and compacting to the lines and grades shown in the Contract Documents, 4" deep minimum.

1. Areas With Unchanged Grades: Loosen topsoil to minimum depth of 6" and apply soil amendments and fertilizers as specified and as recommended by soil analysis. Grade to remove high areas and to fill low areas. Till soil into a homogeneous mixture with fine texture and free of lumps, clods, stones over 1", roots and other extraneous matter.

2. Do not handle loam or subsoil if it is wet or frozen.

B. Limestone and Superphosphate: Apply limestone at rate determined by the soil analysis and approved by Landscape Architect. Adjust pH of topsoil to not less than pH 6.5 and not more than pH 7.0. Distribute evenly by machine and incorporate thoroughly into topsoil. Provide superphosphate at rate of 20 pounds per 1,000 square feet, or as required by soil analysis and approved by Landscape Architect.

C. Fertilizer and Humus: Apply fertilizer and humus as required by soil analysis and approved by Landscape Architect.

D. Mechanical Treatment: Apply soil amendments (such as limestone and fertilizer) by mechanical rotary or drop type distributor, and thoroughly and evenly incorporate into soil to a depth of 3" by discing or other method acceptable to Landscape Architect. Work areas inaccessible to power equipment and areas near tree roots with hand tools to match machine worked areas.

E. Fine Grading: Set sufficient grade stakes for checking the finished grades. Stakes must be set at the bottom and top of slopes. Grades shall be established which are accurate to 1/10th of a foot either way. Connect contours and spot elevations with an even slope. All grading will insure drainage away from structures.

1. After loam has been spread, it shall be carefully prepared by scarifying and hand raking. All large stiff clods, lumps, brush, roots, stumps, litter and other foreign matter, and stones over one inch in diameter shall be removed from the loam. Loam shall also be free of smaller stones in excessive quantities as determined by the Landscape Architect.

2. Fine grade lawn areas to smooth, free draining, even surfaces with fine texture. Roll, rake and drag lawn areas to flatten ridges and fill depressions, except as select areas shown on drawings. Control moisture content to maintain optimum conditions, but do not create a muddy condition.

3. Rolling - Typical: Roll the entire area with a hand roller weighing not more than 100 pounds per foot of width. During the rolling, all depressions caused by settlement of rolling shall be filled with additional loam and the surface shall be regraded and rolled until presenting a smooth and even finish to the required grade or to the shapes and configurations as shown on the details.

4. Maintenance and Restoration: Restore prepared areas to specified condition if eroded, settled, or otherwise disturbed after fine grading and prior to lawn planting.

F. Seeding: Seed only when areas are in a friable condition and neither hard nor muddy, after the loamed areas have been prepared and treated as herein described. Do not seed in windy weather.

1. Uniformly seed lawns in two directions at right angles to each other at a rate of five pounds per 1,000 square feet using a broadcast seeder or other approved method. The depth of the seed in soil should be no more than ½".

2. If covering and rolling is not properly accomplished by the seeding machine, the seed shall be lightly raked into the ground, after which the ground shall be rolled with a 500 pound roller and thoroughly and evenly watered with a fine spray to penetrate the soil to a depth of at least two inches.

3. On slopes steeper than one foot vertical to ten foot horizontal, wood cellulose mulch shall be spread within 24 hours after seeding.

G. Sodding: Limit of sodding shall be as shown on the Drawings. All areas on the plan are to be loamed and sodded only after written approval of the finished grading or as directed by the Landscape Architect. All disturbed areas outside the limit of sodding shall be seeded.

1. Sodding of lawns shall be done only by experienced workmen under the supervision of a qualified foreman. Sodding shall consist of soil preparation, sodding, rolling, pegging, wedding, watering and otherwise providing all labor and materials necessary to secure the establishment of acceptable turf.

2. The soil on which the sod is laid shall be reasonably moist and shall be watered if directed by the Landscape Architect. The sod shall be laid smoothly, edge to edge, and where continuous or solid sodding is called for on the plans sod shall be laid with the longest dimension parallel to the contours. Sodding shall start at the base of slopes and progress upward in continuous parallel rows. Vertical joints between sods shall be staggered. Immediately after laying sod shall be pressed firmly into contact with sod bed by tamping, rolling, or by other approved methods so as to eliminate all air pockets, provide true and even surfaces, insure knitting and protect all exposed sod edges, but without displacement of the sod or deformation of the sod surface. All sod edges shall be filled with approved loam as required to protect exposed sod edges.

3. In all swales, on all slopes one on three or steeper and elsewhere where specified or as directed by the Landscape Architect, sod shall be held in place by stakes. Pegging shall be done immediately after tamping. At least one stake shall be driven through each sod to be pegged and the stakes shall be not more than two feet apart. Stakes shall have their flat sides against the slope and be driven flush.

4. Water sod thoroughly at the rate of 5 gallons per square yard with a fine spray immediately after laying. Roll with light lawn roller to ensure contact with subgrade.

5. After sodded lawn is established for one growing season of two months duration minimum, fertilize at 10 pounds per 1,000 square feet or as recommended by soil test during months of April, May, August or September.

6. The first mowing of sodded areas shall not be done until the sod is firmly rooted and securely in place. Not more than 40% of the grass leaf shall be removed by the initial or subsequent mowing. Grass height shall be maintained between 2 and 2 ½ inches, unless otherwise specified or approved by the Landscape Architect until final acceptance.

H. Planking Over Existing Lawns: If construction operations necessitate that vehicles must drive onto lawn areas, and when conditions are wet enough that vehicles may cause ruts, place plywood planking, or approved equivalent, over ground to be driven on as protection. Restore area disturbed by planting to achieve full healthy lawn growth as approved by Landscape Architect. Vehicular traffic routes must conform to pre-approved routing of construction operations.

3.02 CLEANING, PROTECTION AND EXCESS MATERIALS

A. Clean pavements and keep work areas clean and neat during landscape work. Remove all debris from site.

B. Provide temporary protection, as specified and as needed to restrict traffic, to permit growth to develop, to protect completed work, and to ensure work is without damage or deterioration at time of final acceptance. Remove and replace damaged landscape work prior to acceptance.

C. Excess Loam: All existing loam stockpiled under Earthwork section is the property of the Owner and shall not be removed from the site without first obtaining the written permission of the Owner. If, after completion of landscaping work, there is remaining or excess loam advise the Owner and Landscape Architect and obtain additional instructions. As directed by the Owner, the Contractor shall distribute the topsoil elsewhere on the site or remove the excess topsoil from the site at no additional cost to the Owner.

D. The Landscape Contractor shall be responsible for the site clean-up at the completion of the project including the removal of all tree protection fencing and erosion control devices.

END OF SECTION

SECTION 329410 - LANDSCAPE EDGING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Steel Edging.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1.	Cast-in-Place Concrete	Section 323200
2.	Unit Paving	Section 321400

1.3 REFERENCES

A. American Society of Testing and Materials (ASTM). 100 Barr Harbor Drive, West Conshohocken, PA 19428 (610) 832-9585.

1.4 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product certificates signed by manufacturers certifying that their products comply with specified requirements.

   1. Manufacturer’s certified analysis for standard products.

C. Sample of the following:

1.	Steel Edging:	12" long section.

D. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and address of Construction Managers and owners, and other information specified.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed landscaping work similar in material, design, and extent to that indicated for this Project and with a record of successful landscape establishment.

   1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when exterior planting is in progress.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.

1. All packaged products shall be stored, handled and applied in strict accordance with manufacturers instructions

1.7 PROJECT CONDITIONS

A. Utilities: Determine location of above grade and underground utilities and perform work in a manner which will avoid damage. Hand excavate, as required. Maintain grade stakes until removal is mutually agreed upon by parties concerned.

PART 2 - PRODUCTS

2.1 STEEL EDGING

A. Provide 1/4" thick by 6" deep heavy duty steel plate edging. Edging shall be bolted to the end of the concrete slab below pavers as shown on drawings. Finish: Galvanized.

B. Acceptable manufacturer: Joseph T. Ryerson & Son or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive landscaping for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 UTILITIES

A. Contractor is responsible for determining the location of all utilities, by contacting the appropriate utility company prior to any construction.

B. Take proper precautions so as not to disturb or damage sub-surface elements.

C. Coordinate with other trades.

D. Contractor is liable for any damage to such utilities during the course of construction, and is responsible for making necessary repairs to damaged utilities at his own expense.

3.3 INSTALLATION OF STEEL EDGING

A. Install steel edging in accordance with the plans and manufacturer’s instructions and coordinate with other trades and adjacent pavements.

3.4 CLEANUP AND PROTECTION

A. During installation, keep pavements clean and work area in an orderly condition.

B. Protect landscaping from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods.

3.5 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of it off the Owner's property.

END OF SECTION