

SPECIFICATIONS



REPLACE LIBRARY ROOF

SUCF PROJECT NO. 291071-00

State University College at Purchase
735 Anderson Hill Road
New York, New York 10577



ARCHITECT
Ronnette Riley Architect
494 Eighth Avenue, 15th Floor
New York, NY 10001
Tel. 212-594-4015



Structural Engineers
Ysrael A. Seinuk, P.C. (YAS)
228 East 45th Street, 2nd floor
New York, NY 10017
Tel. 212-687-2233



MEP Engineers
SETTY & Associates, Ltd
535 Eight Avenue, Suite 21S
New York, NY 10018
Tel. 646-253-9000

07 MAY 2024

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	ARCHITECTURAL	07 May 2024
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**STATE UNIVERSITY CONSTRUCTION FUND
NOTICE TO BIDDERS**

(Newspaper Ad)

The State University Construction Fund will receive sealed Proposals for

Project No. 291071-00
Titled Replace Library Roof
At: College at Purchase

Until 2:00 p.m. Local Time on 06/05/2024 at the Fund's Office at H. Carl McCall SUNY Building, 353 Broadway, Albany NY 12246, where such proposals will be publicly opened and read aloud.

The Contractor shall complete all work necessary for substantial completion within **415** calendar days from receipt of Notice to Proceed (note – subject to change based on lead times for major equipment items)

The Fund's project specific goals for this project are 10% MBE and 10% WBE and 3% SDVOB.

A pre-bid conference and project walk through will be held on 05/16/2024 with all contractors assembled at 1:00pm at the SUCF trailer located within the Facilities Dept on Salter Drive on the Collage at Purchase campus.

Bidding and Contract Documents may be examined free of charge at the SUCF trailer on Salter Drive on campus (contact Charles Pinnix at charles.pinnix@purchase.edu) and at:

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
Builders Exchange of Rochester	180 Linden Oaks, Suite 100, Rochester, NY 14625 www.robex.com
Construction Contractors Association (Hudson Valley)	330 Meadow Ave, Newburgh, NY 12550 www.ccahv.com
Construction Exchange of Buffalo & WNY	2660 Williams St., Cheektowoga, NY 14227 www.conexbuff.com
Eastern Contractors Association, Inc.	6 Airline Drive, Albany, NY 12205 www.ecainc.org
Northern NY Builders Exchange	22074 Fabco Rd., Watertown, NY 13601 www.nnybe.com
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
Urban League of Rochester (Business Development Div)	265 N. Clinton Ave, Rochester NY 14605 www.ulr.org

Plan Rooms

Complete sets of Contract Documents for bidding may be obtained from the Consultant upon receipt of a payment of \$49.00 for a printed copy or \$10 for an electronic copy, made payable to the Consultant, for each complete set. 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.

Bids must be submitted in duplicate in accordance with the instructions contained in the Information for Bidders. Security will be required for each bid in an amount not less than five (5) percent of the Total Bid. 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". 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 if bidding.

It is the policy of the State of New York and the Fund to encourage minority/women's business enterprise participation in this project by contractors, subcontractors and suppliers, and all bidders are expected to cooperate in implementing this policy.

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

STATE UNIVERSITY CONSTRUCTION FUND

STATE UNIVERSITY CONSTRUCTION FUND NOTICE TO BIDDERS

The State University Construction Fund will receive sealed Proposals for Project No. 291071-00 Titled Replace Library Roof at State University College at Purchase Until 2:00 p.m. Local Time on 06/05/2024 at the Fund's Office at the H. Carl McCall SUNY Building, 353 Broadway, Albany, NY 12246, where such proposals will be publicly opened and read aloud in Room S201. Bidders are encouraged to view the live stream of the bid opening broadcast on the day of the bid by using the link posted on the Fund's web page: <https://sucf.suny.edu/> Bidders are encouraged to submit their bids early by delivery service and use the bid modification process permitted in part (7) of Section 3 of the Information for Bidders.

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

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

To assure delivery of their bid modification, if any, prior to the aforesaid deadline for receipt of bids, bidders should allow sufficient time to account for internet connectivity problems, to correct email address errors, to be processed through spam filters and security software and to allow or delays that are typical for congested internet servers. Bidders may at any 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 **415** calendar days from receipt of Notice to Proceed (note – subject to change based on lead times for major equipment items)

The Fund's project specific goals for this project are 10% MBE and 10% 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 05/16/2024 with all contractors assembled at 1:00pm at the SUCF trailer located within the Facilities Dept on Salter Drive on the Collage at Purchase campus. 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:

Campus at which the work is to be performed.

Dodge Reports

ConstructConnect

Construction Journals

Builders Exchange of Rochester

Visit www.construction.com Email: support@construction.com

Visit www.cmdgroup.com. Email: content@constructconnect.com

Visit www.constructionjournal.com

180 Linden Oaks, Suite 100, Rochester, NY 14625 www.robex.com

Construction Contractors Association (Hudson Valley)	330 Meadow Ave, Newburgh, NY 12550	www.ccahv.com
Construction Exchange of Buffalo & WNY	2660 Williams St., Cheektowoga, NY 14227	www.conexbuff.com
Eastern Contractors Association, Inc.	6 Airline Drive, Albany, NY 12205	www.ecainc.org
Northern NY Builders Exchange	22074 Fabco Rd., Watertown, NY 13601	www.nnybe.com
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
Urban League of Rochester (Business Development Div)	265 N. Clinton Ave, Rochester NY 14605	www.ulr.org

Plans will be available on May 7, 2024 from Data Flow, 19 S Washington Street, Binghamton, NY 13907, (866) 829-2821, (the Printer) in either electronic or paper format. Bidders will be able to access the project online at the Printer's web site:

Representative: DATAFLOW
Designated web portal: www.nyplanroom.com
Place: Dataflow, Inc
607-772-2001
BidSupport@goDataflow.com

M-F 9:00 p.m. to 5:00 p.m.

Please read these instructions before ordering a bid package, as they will outline the process for purchasing files and/or ordering sets via electronic deposit.

Prospective bidders must obtain a set of bid documents from the designated web portal, www.nyplanroom.com. Ordering from this web portal automatically places the prospective bidder on the plan holders' list, and thus eligible to bid the project. This designated web portal will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a bid for the project. All official notifications, addenda, and other bidding documents will be offered only through the designated web portal with notifications to registered bidders. As such, bidders who obtain documents from other sources such as exchange plan rooms will not qualify as bidders. Neither the Owner, Construction Manager, Architect/Engineer, nor Dataflow Inc will be responsible for bidding documents, including addenda, if any, that are obtained from sources other than the designated web portal.

a.) Bid documents including plans and specifications are available for electronic download for a non-refundable fee of \$10.00 per SUCF guidelines, payable by credit card.

b.) Bid documents including printed sets of plans and specifications may be ordered in paper format for a non-refundable fee of \$49.00 per SUCF guidelines, payable by credit card. Shipping charges may apply.

Please contact Dataflow at bidsupport@goDataflow.com or call at 607-772-2001 with any additional questions on how to order a bid package or the www.nyplanroom.com portal.

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.

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, three (3) contracts similar in size, 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 reroofing with a modified bituminous system on an occupied building; a minimum of one replacing a

large skylight, 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. A working plan and schedule showing clearly, in sequence and timescale, all significant activities of the work. The working plan and schedule shall be in the form of suitable charts, diagrams or bar graphs and shall be based on the Contractor's logic and time estimates for the anticipated time of commencement and completion of the work and its significant phases and activities and the interrelationship between such significant activities and other items pertinent to the work. This requirement is in addition to and not a substitute for the schedule requirements of Section 3.02 (Time Progress Schedule) of the Agreement. Although the working plan and schedule submitted shall not be used in determining the lowest responsible bidder, failure to submit the working plan and schedule may result in the rejection of the Proposal as not responsive.
- c. The names and addresses of the bidder's proposed subcontractor for the Asbestos Abatement 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) 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.

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.

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.**

<p>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</p>	<p>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 <u>ONLINE FORMAT ONLY</u>; any other form submittal will be rejected.</p>
<p>CONTRACT INFORMATION</p>	<ul style="list-style-type: none"> ▪ 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)
<p>BUSINESS PARTNER INFORMATION MWBE/SDVOB CONTACT</p>	<ul style="list-style-type: none"> ▪ 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.
<p>SUBCONTRACTOR/SUPPLIER INFORMATION BE ADVISED: Only firms holding “current” New York State certification status are acceptable for participation credit.</p>	<ul style="list-style-type: none"> ▪ 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. <p>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/</p> <p>NOTE: Dual certified firms may be used as either, but <u>not</u> both, within their certification product code.</p> <p>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/</p>

MWBE/SDVOB UTILIZATION PLAN INSTRUCTIONS

SUBCONTRACTOR/SUPPLIER INFORMATION	<ul style="list-style-type: none"> ▪ If the participation is not direct from the Prime/General Contractor, Enter the 1st or 2nd tier subcontractor’s name and email address. <p>The prime contractor is responsible for ensuring participation included in the Plan by subcontractors/suppliers is executed.</p>
DESCRIPTION OF WORK <p>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.</p> <p>Firms who participate in the project outside of these conditions <u>will not</u> be credited toward the MWBE and/or SDVOB Utilization Plan and goals for the contract.</p>	<ul style="list-style-type: none"> ▪ 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 <p>The following credit will be applied for MWBE subcontractors/suppliers.</p> <ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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 <u>prior to final submission</u>, 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 <p>*An original signature is required on the Utilization Plan.</p>	<ul style="list-style-type: none"> ▪ 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 <p>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.</p>	<ul style="list-style-type: none"> ▪ 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 <ul style="list-style-type: none"> ➢ 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.
<p>For questions and/or assistance contact the Opportunities Program office. Phone: 518-320-1650 Email: sucf.opportunityadmin@sunv.edu</p>	

Section 00 25 13 Pre-Bid Meetings

A pre-bid conference and project walk-through will be held on 05/16/2024 at 1:00 PM with all Bidders assembled at 1:00pm at the SUCF trailer located within the Facilities Dept on Salter Drive on the Collage at Purchase campus. No individual or additional walk-throughs may be performed during the bid preparation time period. Vehicle parking must comply with campus regulations. There is no free parking on campus for those attending the walk through. Violators may be ticketed and towed. Failure to attend a walk-through shall not be the cause for extra payment.

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:
 - 10% percent for MBE participation
 - 10% 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 and Schedule A of the Construction Agreement with their agent/broker;
 - at no cost to contractors, Builder's Risk insurance will be provided by the Fund under a master builders risk program; and
 - Owner's Protective Liability Insurance is no longer required from contractors.

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. 291071-00

Project No. 291071-00
Replace Library Roof
State University College at Purchase

TO THE STATE UNIVERSITY CONSTRUCTION FUND:

1. The Bidder agrees that it shall complete all work necessary for substantial completion by within **415** calendar days from receipt of Notice to Proceed (note – subject to change based on lead times for major equipment items)

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

\$ 118,000

One Hundred Eighteen Thousand Dollars \$ 118,000
(In words) (In figures)

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

(In words) \$ _____
(In figures)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Dated _____

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

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

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

Firm's NYS SFS Vendor Identification Number _____

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

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

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

THE POST OFFICE ADDRESS OF THE BIDDER

Telephone No. _____ Email Address _____

If a Corporation

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

If a Partnership

Name of Partners	Address
_____	_____
_____	_____
_____	_____

If a Joint Venture

Name of Members	Address
_____	_____
_____	_____
_____	_____

If an Individual

Name of Individual	Address
_____	_____

If a Limited Liability Corporation

Name	Address
_____	_____
_____	_____
_____	_____

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

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

Address:

Name and Title of Person Submitting this Form:

SUCF Project Number: _____

Date: _____

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

If yes, please answer the next questions:

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

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

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

Governmental Entity: _____

Date of Finding of Non-Responsibility: _____

Basis of Finding of Non-Responsibility: _____

(Add additional pages as necessary)

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

6. If yes, please provide details below.

Governmental Entity: _____

Date of Termination or Withholding of Contract: _____

Basis of Termination or Withholding: _____

(Add additional pages as necessary)

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

By: _____

Signature

Date

ENCOURAGING USE OF NEW YORK STATE BUSINESSES IN CONTRACT PERFORMANCE

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

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

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

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

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

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

SUCF Project Number: _____

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

(Attach additional identifying information with the bid as required)

By: _____ Date: _____
Signature

Print Name and Title: _____

Contractor Name: _____

Contractor Address: _____

EO 177 Certification

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

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

Generally, the Human Rights Law applies to:

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

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

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

Contractor Name: _____

By: _____ Date: _____
Signature

Print Name and Title: _____

State University Construction Fund

Bid proposal supplement

Attachment A – List of Completed Similar Construction Projects

Bidder Name:

SUCF Project No.: 291071-00

Bidders must provide three (3) 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			
3.	Agency/Owner			Award Date	Contract Amount	Date Completed
	Agency/Owner Contact Person		Telephone No.	Designer Architect and /or Design Engineer		
	Contract No.	Contact Email	Project Title & Scope			
Completed By:				Phone Number: Email: Date:		

APPENDIX A

For SUCF Project No. 291071-00

BID BREAKDOWN

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

<u>DIVISION OR SECTION</u>	<u>AMOUNT</u>
1. Division 1 - General Requirements	\$ _____
2. All other Division 2 work	\$ _____
3. Division 4 - Masonry	\$ _____
4. Division 5 - Metals	\$ _____
5. Division 6 – Wood & Plastics	\$ _____
6. Division 7 – Thermal & Moisture Protection	\$ _____
7. Division 8 – Openings	\$ _____
8. Division 9 – Finishes	\$ _____
9. Division 22 – Plumbing	\$ _____
10. Division 23 – HVAC	\$ _____
11. Division 26 – Electrical	\$ _____
12. Sum of all lines above (Base Bid)	\$ _____
13. Field Order Allowance	\$ _____ 118,000 _____
Total Bid	\$ _____

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

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

Yes No

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

Name of Contractor

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*.

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

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

BID BOND

BOND NO. _____

KNOW ALL PERSONS BY THESE PRESENTS, that

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

, having an office at

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.

(hereinafter called the "Principal") and the

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

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

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

(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

Principal

By

(If Corporation, affix corporate seal)

_____ 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.

Surety

By

(If Corporation, affix corporate seal)

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

ACKNOWLEDGMENTS

(ACKNOWLEDGMENT BY PRINCIPAL, UNLESS IT BE A CORPORATION)

STATE OF)
) ss.:
COUNTY OF)

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

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

Notary Public

(ACKNOWLEDGEMENT BY CORPORATION)

STATE OF NEW YORK)
COUNTY OF) SS:

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

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

Notary Public

;

(ACKNOWLEDGMENT BY SURETY COMPANY)

STATE OF)
) ss.:
COUNTY OF)

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

_____, to me known who, being by me

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

that he is the _____ of the

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

Notary Public

00 43 13 10 INSTRUCTIONS FOR EXECUTION OF BID BOND

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

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

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

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

BID BOND

BOND NO. _____

KNOW ALL PERSONS BY THESE PRESENTS, that

-1-

, having an office at

-1a-

(hereinafter called the "Principal") and the

-2-

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

-4-

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

-5-

dollars (\$)

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

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

-6-

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

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

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

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

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

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

-9-

Principal

-10-

By

(If Corporation, affix corporate seal) -11-

-12-

Surety

-13-

By

(If Corporation, affix corporate seal) -14-

INSTRUCTIONS FOR EXECUTION OF ACKNOWLEDGMENTS

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

Acknowledgment by Individual Principal:

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

Acknowledgment by Corporate Principal:

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

Acknowledgment By Surety:

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

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

ACKNOWLEDGMENTS

(ACKNOWLEDGMENT BY PRINCIPAL, UNLESS IT BE A CORPORATION)

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

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

-7-

Notary Public

-8-

(ACKNOWLEDGMENT BY PRINCIPAL, IF A CORPORATION)

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

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

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

-10-

Notary Public

-11-

(ACKNOWLEDGMENT BY SURETY COMPANY)

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

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

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

-10-

Notary Public

State University Construction Fund AGREEMENT

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

hereinafter referred to as the "Contractor".

WITNESSETH:

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

in strict accordance with the Contract Documents;

(b) complete all work necessary for substantial completion by , 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.

duties and obligations imposed upon the Contractor by 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

Section 1.02 Captions

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

Section 1.03 Nomenclature

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

Section 1.04 Entire Agreement

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

Section 1.05 Successors and Assigns

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

Section 1.06 Accuracy and Completeness of Contract Documents

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

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

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

Section 1.07 Organization of Contract Documents

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

Section 1.08 Furnishing of Contract Documents

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

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

Section 1.09 Examination of Contract Documents and Site

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

Section 1.10 Invalid Provisions

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

Section 1.11 No Collusion or Fraud

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

Section 1.12 Notices

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

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

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

The State University Construction Fund

Name:
Title: Project Coordinator
The H. Carl McCall SUNY Building
353 Broadway, Albany, NY 12246
Telephone Number:
E-mail address:

Contractor

Company Name:
Designated Contact Name:
Contact Title: Project Manager
Address:
Telephone Number:
E-mail Address:

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

(3) The parties may, from time to time, specify any new or different address in the United States as their address for purpose of receiving notice under this Agreement by giving fifteen (15) days written notice to the other party sent in accordance herewith. The parties agree to mutually designate individuals as their respective representatives for the purposes of receiving notices under this Agreement. Additional individuals may be designated in writing by the parties for purposes of implementation and administration/billing, resolving issues and problems and/or for dispute resolution.

Section 1.13 Singular-Plural; Male-Female

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

**Article II
Contract Administration and Conduct**

Section 2.01 Consultant's Status

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

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

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

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

Section 2.02 Finality of Decisions

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

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

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

Section 2.03 Claims and Disputes

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

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

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

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

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

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

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

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

Section 2.04 Omitted Work

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

Section 2.05 Extra Work

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

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

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

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

Section 2.06 Contractor to Give Personal Attention

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

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

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

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

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

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

Section 2.07 Employment of Workers

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

Section 2.08 Detailed Drawings and Instructions

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

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

Section 2.09 Contract Documents to Be Kept at Site

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

Section 2.10 Permits and Building Codes

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

Section 2.11 Surveys

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

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

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

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

Section 2.12 Site Conditions

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

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

Section 2.13 Right to Change Location

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

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

Section 2.14 Unforeseen Difficulties

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

Section 2.15 Moving Materials and Equipment

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

Section 2.16 Other Contracts

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

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

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

(3) Not Used.

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

Section 2.17 Inspection and Testing

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

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

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

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

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

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

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

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

Section 2.18 Subcontractors

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

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

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

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

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

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

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

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

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

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

Section 2.19 Shop Drawings and Samples

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

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

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

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

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

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

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

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

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

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

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

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

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

Section 2.20 Equivalents - Approved Equal

(1) Equivalents or Approvals - General

- a. The words "similar and equal to", or equal", "equivalent" and such other words of similar content and meaning shall for the purposes of this Contract be deemed to mean similar and equivalent to one of the named products. For the purposes of subdivisions (1) and (2) of this Section and for the purposes of the Bidding Documents, the word "products" shall be deemed to include the words "articles", "materials", "items", "equipment" and "methods". Whenever in the Contract Documents one or more products are specified, the words "similar and equal to" shall be deemed inserted.
- b. Whenever any product is specified in the Contract Documents by a reference to the name, trade name, make or catalog number of any manufacturer or supplier, the intent is not to limit competition, but to establish a standard of quality which the Consultant has determined is necessary for the Project. A Contractor may at its option use any product other than that specified in the Contract Documents provided the same is approved by the Consultant in accordance with the procedures set forth in subdivision (2) of this Section except for the single/sole source shown in Specification Sections where the use of another product is not permitted. In all cases the Consultant shall be the sole judge as to whether a proposed product is to be approved and the Contractor shall have the burden of proving, at its own cost and expense, to the satisfaction of the Consultant, that the proposed product is similar and equal to the named product. In making such determination the Consultant may establish such objective and appearance criteria as it may deem proper that the proposed product must meet in order for it to be approved.

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

(2) Equivalents or Approvals After Bidding

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

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

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

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

Section 2.21 Patents, Trademarks and Copyrights

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

Section 2.22 Possession Prior to Completion

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

Section 2.23 Completion and Acceptance

(1) Partial Completion

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

(2) Substantial Completion

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

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

(3) Final Completion and Acceptance

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

Section 2.24 Record Drawings

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

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

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

Section 2.25 Guarantees

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

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

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

Section 2.26 Default of Contractor

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Section 2.27 Termination for Convenience

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

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

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

performance of work terminated by the notice of termination;

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

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

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

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

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

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

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

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

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

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

Article III Time of Performance

Section 3.01 Commencement, Prosecution and Completion of Work

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

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

Section 3.02 Time Progress Schedule

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

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

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

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

Section 3.03 Time Progress Schedule for Shop Drawings and Samples

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

Section 3.04 Notice of Conditions Causing Delay

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

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

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

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

Section 3.05 Extension of Time

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

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

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

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

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

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

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

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

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

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

Section 3.06 Contractor's Progress Reports

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

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

Article IV Payment

Section 4.01 Compensation to Be Paid Contractor

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

which sum is the amount of the Contract consideration.

Section 4.02 Value of Omitted and Extra Work

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

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

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

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

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

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

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

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

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

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

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

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

Section 4.03 Adjustment for Bond and Insurance Premiums

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

Section 4.04 Unit Prices

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

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

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

Section 4.05 Allowances

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

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

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

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

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

Section 4.05A Field Orders

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

Section 4.06 Deductions for Unperformed and/or Uncorrected Work

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

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

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

Section 4.07 Liquidated Damages

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

Section 4.08 Contract Breakdown

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

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

Section 4.09 Prompt Payment Requirements

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

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

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

Section 4.10 Progress Payments

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

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

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

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

Section 4.11 Applications for Progress Payments

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

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

Section 4.12 Progress Payments for Materials Delivered to Site

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

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

Section 4.13 Transfer of Title to Materials Delivered to Site

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

Section 4.14 Progress Payments for Materials Stored Off Site

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

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

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

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

Section 4.15 Withholding of Progress Payments

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

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

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

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

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

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

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

Section 4.16 Lien Law

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

Section 4.17 Substitution of Securities for Retainage

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

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

Section 4.18 Final Payment

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

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

Section 4.19 Acceptance of Final Payment

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

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

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

Section 4.20 Guarantee Payment

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

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

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

Section 4.21 Acceptance of Guarantee Payment

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

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

Section 4.22 Contractor Limited to Money Damages

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

Section 4.23 No Estoppel or Waiver

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

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

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

Section 4.24 Limitation of Actions

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

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

commenced within this time frame shall be dismissed with prejudice;

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

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

Section 4.25 Electronic Payments

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

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

**Article V
Protection of Rights and Property**

Section 5.01 Accidents and Accident Prevention

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

Section 5.02 Adjoining Property

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

Section 5.03 Emergencies

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

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

Section 5.04 Fire Safety

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

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

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

Section 5.05 Risks Assumed by Contractor

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

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

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

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

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

Section 5.06 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 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 subcontractors 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: _____

If Corporation, affix Corporate Seal

SUCF Project No.

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 himself depose and say that he is a member of the firm of _____ consisting of himself 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 review 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.

<u>Work or Material Description</u>	<u>Amount in Words</u>	<u>Amount in Figures</u>
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SCHEDULE II Allowance(s)

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

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

Insurance Requirements Schedule A

Project: 291071 - 00- Replace Library Roof
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	Provided by SUCF				
Owner's Protective	1,000,000	2,000,000			

Insurance Requirements Schedule A

Project: 291071 - 00- Replace Library Roof

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

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

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

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

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

Principal

By _____

(If Corporation, affix corporate seal)

Surety

By _____

(If Corporation, affix corporate seal)

ACKNOWLEDGMENTS FOR BONDS

(ACKNOWLEDGMENT BY PRINCIPAL, UNLESS IT BE A CORPORATION)

STATE OF)
) ss.:
COUNTY OF)

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

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

Notary Public

(ACKNOWLEDGMENT BY PRINCIPAL, IF A CORPORATION)

STATE OF)
) ss.:
COUNTY OF)

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

_____, to me known who, being by me

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

that he is the _____ of the

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

Notary Public

(ACKNOWLEDGMENT BY SURETY COMPANY)

STATE OF)
) ss.:
COUNTY OF)

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

_____, to me known who, being by me

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

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

Notary Public



Kathy Hochul, Governor

Roberta Reardon, Commissioner

State University Construction

Ronnette Riley
494 Eighth Avenue, 15th FL
New York NY 10001

Schedule Year 2023 through 2024
Date Requested 04/29/2024
PRC# 2024005028

Location State Unv College at Purchase
Project ID# 291071
Project Type replacement of flat roofing system and skylight at existing library building.

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 from the Bureau of Public Work. Requests may be submitted by: mail to NYSDOL, Bureau of Public Work, State Office Bldg. Campus, Bldg. 12, Rm. 130, Albany, NY 12226; Fax to Bureau of Public Work (518) 485-1870; or electronically at the NYSDOL website www.labor.ny.gov.

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

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

Payrolls and Payroll Records

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

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

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

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

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

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

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

The wages and supplements contained in the annual determination become effective July 1st whether or not the new determination has been received by a given contractor. Care should be taken to review the rates for obvious errors. Any corrections should be brought to the Department's attention immediately. It is the responsibility of the public work contractor to use the proper rates. If there is a question on the proper classification to be used, please call the district office located nearest the project. Any errors in the annual determination will be corrected and posted to the NYS DOL 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 University Construction

Ronnette Riley
494 Eighth Avenue, 15th FL
New York NY 10001

Schedule Year 2023 through 2024
Date Requested 04/29/2024
PRC# 2024005028

Location State Unv College at Purchase
Project ID# 291071
Project Type replacement of flat roofing system and skylight at existing library building.

Notice of Contract Award

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

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

Contractor Information

All information must be supplied

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

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

Social Security Numbers on Certified Payrolls:

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

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

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

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

If you have any questions concerning the Fair Play Act, please call the State Labor Department toll-free at 1-866-435-1499 or email us at: dol.misclassified@labor.ny.gov .

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

Effective June 23, 2020

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

(12.20)

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

Budget Policy & Reporting Manual

B-610

Public Work Enforcement Fund

effective date December 7, 2005

1. Purpose and Scope:

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

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

2. Background and Statutory References:

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

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

3. Procedures and Agency Responsibilities:

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

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

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

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

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

Reports should contain the following information:

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

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

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

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

Required Notice under Article 25-B of the Labor Law

**Attention All Employees, Contractors and Subcontractors:
You are Covered by the Construction Industry Fair Play Act**

The law says that you are an employee unless:

- You are free from direction and control in performing your job, **and**
- You perform work that is not part of the usual work done by the business that hired you, **and**
- You have an independently established business.

Your employer cannot consider you to be an independent contractor unless all three of these facts apply to your work.

It is against the law for an employer to misclassify employees as independent contractors or pay employees off the books.

Employee Rights: If you are an employee, you are entitled to state and federal worker protections. These include:

- Unemployment Insurance benefits, if you are unemployed through no fault of your own, able to work, and otherwise qualified,
- Workers' compensation benefits for on-the-job injuries,
- Payment for wages earned, minimum wage, and overtime (under certain conditions),
- Prevailing wages on public work projects,
- The provisions of the National Labor Relations Act, and
- A safe work environment.

It is a violation of this law for employers to retaliate against anyone who asserts their rights under the law. Retaliation subjects an employer to civil penalties, a private lawsuit or both.

Independent Contractors: If you are an independent contractor, **you must pay all taxes and Unemployment Insurance contributions required by New York State and Federal Law.**

Penalties for paying workers off the books or improperly treating employees as independent contractors:

- **Civil Penalty** First offense: Up to \$2,500 per employee
 Subsequent offense(s): Up to \$5,000 per employee
- **Criminal Penalty** First offense: Misdemeanor - up to 30 days in jail, up to a \$25,000 fine and debarment from performing public work for up to one year.
 Subsequent offense(s): Misdemeanor - up to 60 days in jail or up to a \$50,000 fine and debarment from performing public work for up to 5 years.

If you have questions about your employment status or believe that your employer may have violated your rights and you want to file a complaint, call the Department of Labor at (866) 435-1499 or send an email to dol.misclassified@labor.ny.gov. All complaints of fraud and violations are taken seriously. You can remain anonymous.

Employer Name:

IA 999 (09/16)



Attention Employees

THIS IS A: **PUBLIC WORK PROJECT**

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

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

Chapter 629 of the Labor Laws of 2007:

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



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

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

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

Contractor Name: _____

Project Location: _____

Requirements for OSHA 10 Compliance

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

The Bureau will enforce the statute as follows:

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

Proof of completion may include but is not limited to:

- Copies of bona fide course completion card (*Note: Completion cards do not have an expiration date.*)
- Training roster, attendance record or other documentation from the certified trainer pending the issuance of the card.
- Other valid proof

**A certification by the employer attesting that all employees have completed such a course is not sufficient proof that the course has been completed.

Any questions regarding this statute may be directed to the New York State Department of Labor, Bureau of Public Work at 518-457-5589.

WICKS

Public work projects are subject to the Wicks Law requiring separate specifications and bidding for the plumbing, heating and electrical work, when the total project's threshold is \$3 million in Bronx, Kings, New York, Queens and, Richmond counties; \$1.5 million in Nassau, Suffolk and Westchester counties; and \$500,000 in all other counties.

For projects below the monetary threshold, bidders must submit a sealed list naming each subcontractor for the plumbing, HVAC and electrical and the amount to be paid to each. The list may not be changed unless the public owner finds a legitimate construction need, including a change in specifications or costs or the use of a Project Labor Agreement (PLA), and must be open to public inspection.

Allows the state and local agencies and authorities to waive the Wicks Law and use a PLA if it will provide the best work at the lowest possible price. If a PLA is used, all contractors shall participate in apprentice training programs in the trades of work it employs that have been approved by the Department of Labor (DOL) for not less than three years. They shall also have at least one graduate in the last three years and use affirmative efforts to retain minority apprentices. PLA's would be exempt from Wicks, but deemed to be public work subject to prevailing wage enforcement.

The Commissioner of Labor shall have the power to enforce separate specification requirements on projects, and may issue stop-bid orders against public owners for non-compliance.

Other new monetary thresholds, and similar sealed bidding for non-Wicks projects, would apply to certain public authorities including municipal housing authorities, NYC Construction Fund, Yonkers Educational Construction Fund, NYC Municipal Water Finance Authority, Buffalo Municipal Water Finance Authority, Westchester County Health Care Association, Nassau County Health Care Corp., Clifton-Fine Health Care Corp., Erie County Medical Center Corp., NYC Solid Waste Management Facilities, and the Dormitory Authority.

Contractors must pay subcontractors within a 7 days period.

(07.19)

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

This information is provided to assist you in the interpretation of particular requirements for each classification of worker contained in the attached Schedule of Prevailing Rates.

Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below.

Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a county-by-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates.

Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use.

Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

Payrolls and Payroll Records

Contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemporaneous, true, and accurate payroll records.

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

Paid Holidays

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

Overtime

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

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

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

Supplemental Benefits

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

Effective Dates

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

Apprentice Training Ratios

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

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

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

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

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

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

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

Westchester County General Construction

Boilermaker **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	33.5% of Hourly
Repair \$ Renovations	Wage Paid	Wage Paid
	+ \$ 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	\$31.20	\$39.58	\$47.97
	+ 5.30*	+ 5.30*	+ 5.30*	+ 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	07/01/2025	07/01/2026
Base Wage	\$ 39.80	Additional \$ 1.25**	Additional \$ 1.25**	Additional \$ 1.25**
	+\$6.71*			

*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
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*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
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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* 50%	2nd & 3rd Term* 50%	4th & 5th Term 55%	6th & 7th Term 65%	8th & 9th Term 75%
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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
Journeyman/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 Journeyman/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
Stone Derrickmen Rigger	\$ 72.90	Additional + \$ 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
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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
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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
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Ironworker:			Additional
Structural	\$ 57.20	\$ 57.70	\$ 1.75/Hr.*
Bridges			
Machinery			

(*)To be allocated at a later date.

SUPPLEMENTAL BENEFITS

PER HOUR PAID:

Journeyman	\$ 87.35	\$ 88.60
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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
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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 plus \$1.55	\$ 26.80 plus \$1.58	\$ 33.10 plus \$1.58	\$ 35.60 plus \$1.58

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

SUPPLEMENTAL BENEFITS
 Per Hour:

1st term	2nd term	3rd term	4th Term
\$ 18.17	\$ 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 0-1000	Level B 1001-2000	Level C 2001-3000	Level D 3001-4000
\$ 28.08	\$ 31.90	\$ 35.72	\$ 39.54

Supplemental Benefits per hour:

Apprentices All terms	\$ 23.20
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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 Air lance, Water Jet Lance.

GROUP IV: Concrete Laborers, Asph. Worker, Rock Scaler, Vibrator Oper., Bit Grinder, Air Tamper, Pumps, Epoxy (adhesives, fillers and troweled on), Barco Rammer, Concrete Grinder, Crack Router Operator, Guide Rail-digging holes and placing concrete and demolition when not to be replaced, distribution of materials and tightening of bolts.

GROUP V: Drillers Helpers, Common Laborer, Mason Tenders, Signal Person, Pit Person, Truck Spotter, Powder Person, Landscape/Nursery Person, Dump Person, Temp. Heat.

GROUP VIA: Asbestos/Toxic Waste Laborer-All removal (Roads, Tunnels, Landfills, etc.) Confined space laborer, Bio-remediation, Phyto-remediation, Lead or Hazardous material, Abatement Laborer.

Wages:(per hour) 07/01/2023

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	2nd term	3rd term	4th term
	1-1000hrs	1001-2000hrs	2001-3000hrs	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	\$ 30.90
	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid
Group B	\$ 26.40	\$ 26.90
	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

OVERTIME PAY

See (B, E, Q,) on OVERTIME PAGE. *Note* Double time for emergency work designated by the Dept of Jurisdiction.
 NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked.
 Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.
 Overtime See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyman Lineman wage.

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

SUPPLEMENTAL BENEFITS per hour:

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

*The 7% is based on the hourly wage paid, straight time or premium time.

6-1249aWest

Lineman Electrician - Teledata

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	\$ 5.70	\$ 5.70
	*plus 3% of the hourly wage paid	*plus 3% of the hourly wage paid	*plus 3% of the hourly wage paid

*The 3% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked.

Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

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

6-1249LT - Teledata

Lineman Electrician - Traffic Signal, Lighting

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
Tile Setters	\$ 62.98	\$ 63.50	Additional \$ 0.72

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2023	12/04/2023
	\$ 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	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
	1-750	751-1500	1501-2250	2251-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6750	6501-7000
07/01/2023	\$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* +\$.137	\$17.86* +\$.142	\$18.86* +\$.183	\$18.86* +\$.188	\$16.86* +\$.603	\$22.11* +\$.61
12/04/2023	\$12.55* +\$.073	\$12.55* +\$.078	\$15.63* +\$.089	\$15.36* +\$.094	\$16.36* +\$.138	\$17.86* +\$.143	\$18.86* +\$.184	\$18.86* +\$.189	\$16.86* +\$.604	\$22.11* +\$.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
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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
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01/01/2024	\$7.12*	\$9.16*	\$17.22*	\$25.36*	\$26.36*	\$27.36*
	+\$3.21	+\$4.12	+\$5.51	+\$6.42	+\$7.34	+\$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 &	\$ 47.22	\$ 47.44

Terrazzo Polisher

SUPPLEMENTAL BENEFITS

Per Hour:
 Journeyworker:

Building-Marble Restoration: Marble, Stone & Polisher	\$ 30.29	\$ 30.64
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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
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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
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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
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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
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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
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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

Operating Engineer - Building

04/01/2024

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 8

ENTIRE COUNTIES

Putnam, Westchester

PARTIAL COUNTIES

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

WAGES

GROUP I:

Cranes (All Types up to 49 tons), Boom Trucks, Cherry Pickers (All Types), Clamshell Crane, Derrick (Stone and Steel), Dragline, Franki Pile Rig or similar, High Lift (Lull or similar) with crane attachment and winch used for hoisting or lifting, Hydraulic Cranes, Pile Drivers, Potain and similar.

Cranes (All types 50-99 tons), Drill Rig Casa Grande (CAT or similar), Franki Pile Rig or similar, Hydraulic Cranes (All types including Crawler Cranes- No specific boom length).

Cranes (All types 100 tons and over), All Tower Cranes, All Climbing Cranes irrespective of manufacturer and regardless of how the same is rigged, Franki Pile Rig or similar, Conventional Cranes (All types including Crawler Cranes-No specific boom length), Hydraulic Cranes.

GROUP I-A: Barber Green Loader-Euclid Loader, Bulldozer, Carrier-Trailer Horse, Concrete Cleaning Decontamination Machine Operator, Concrete-Portable Hoist, Conway or Similar Mucking Machines, Elevator & Cage, Excavators all types, Front End Loaders, Gradall, Shovel, Backhoe, etc.(Crawler or Truck), Heavy Equipment Robotics Operator/Mechanic, Hoist Engineer-Material, Hoist Portable Mobile Unit, Hoist(Single, Double or Triple Drum), Horizontal Directional Drill Locator, Horizontal Directional Drill Operator and Jersey Spreader, Letourneau or Tournapull(Scrapers over 20 yards Struck), Lift Slab Console, etc., Lull HiLift or Similar, Master Environmental Maintenance Mechanics, Mucking Machines Operator/Mechanic or Similar Type, Overhead Crane, Pavement Breaker(Air Ram), Paver(Concrete), Post Hole Digger, Power House Plant, Road Boring Machine, Road Mix Machine, Ross Carrier and Similar Machines, Rubber tire double end backhoes and similar machines, Scoopmobile Tractor-Shovel Over 1.5 yards, Shovel (Tunnels), Spreader (Asphalt) Telephie(Cableway), Tractor Type Demolition Equipment, Trenching Machines-Vermeer Concrete Saw Trencher and Similar, Ultra High Pressure Waterjet Cutting Tool System, Vacuum Blasting Machine operator/mechanic, Winch Truck A Frame.

GROUP I-B: Compressor (Steel Erection), Mechanic (Outside All Types), Negative Air Machine (Asbestos Removal), Push Button (Buzz Box) Elevator.

GROUP II: Compactor Self-Propelled, Concrete Pump, Crane Operator in Training (Over 100 Tons), Grader, Machines Pulling Sheep's Foot Roller, Roller (4 ton and over), Scrapers (20 yards Struck and Under), Vibratory Rollers, Welder.

GROUP III-A: Asphalt Plant, Concrete Mixing Plants, Forklift (All power sources), Joy Drill or similar, Tractor Drilling Machine, Loader (1 1/2 yards and under), Portable Asphalt Plant, Portable Batch Plant, Portable Crusher, Skid Steer (Bobcat or similar), Stone Crusher, Well Drilling Machine, Well Point System.

GROUP III-B: Compressor Over 125 cu. Feet, Conveyor Belt Machine regardless of size, Compressor Plant, Ladder Hoist, Stud Machine.

GROUP IV-A: Batch Plant, Concrete Breaker, Concrete Spreader, Curb Cutter Machine, Finishing Machine-Concrete, Fine Grading Machine, Hepa Vac Clean Air Machine, Material Hopper(sand, stone, cement), Mulching Grass Spreader, Pump Gypsum etc, Pump-Plaster-GROUT-Fireproofing. Roller(Under 4 Ton),Spreading and Fine Grading Machine, Steel Cutting Machine, Siphon Pump, Tar Joint Machine, Television Cameras for Water, Sewer, Gas etc. Turbo Jet Burner or Similar Equipment, Vibrator (1 to 5).

GROUP IV-B: Compressor (all types), Heater (All Types), Fire Watchman, Lighting Unit (Portable & Generator) Pump, Pump Station(Water, Sewer, Portable, Temporary), Welding Machine (Steel Erection & Excavation).

GROUP V: Mechanics Helper, Motorized Roller (walk behind), Stock Attendant, Welder's Helper, Maintenance Engineer Crane(75 ton and over).

Group VI-A: Welder Certified

GROUP VI-B: Utility Man, Warehouse Man.

WAGES: (per hour)

	07/01/2023	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
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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	\$ 34.85 up to
40 hours	40 hours
After 40 hours	After 40 hours
\$24.50 plus	\$25.55 plus
\$1.25 on all	\$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
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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 Dutchess County lying South of the North City line of Poughkeepsie.

WAGES
 Feasibility and preliminary design surveying, any line and grade surveying for inspection or supervision of construction.

Per hour: 07/01/2023
 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
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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, Schuylar, 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
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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 Walkkill and Shawangunk Prisons) except for remainder of Town of Shawangunk and Towns of Plattekill, Marlboro, and Wawarsing.

WAGES

Per hour:

	07/01/2023
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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 Walkill 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/Waterproofers	\$ 46.50	\$2.50
	+ \$7.00*	

* This portion is not subjected to overtime premiums.

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

SUPPLEMENTAL BENEFITS

Per Hour: \$ 31.37

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	\$ 27.90	\$ 34.88
		+ 3.50*	+ 4.20*	+ 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	\$ 23.25	\$ 27.90	\$ 34.88
		+ 3.16*	+ 3.50*	+ 4.20*	+ 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.

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
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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

Journeyman \$ 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

10 Village

11 Town

12 County

13 Other Non-N.Y. State
(Describe)

3. SEND REPLY TO (check if new or change)
Name and complete address:

Telephone

Fax

E-Mail:

4. SERVICE REQUIRED. Check appropriate box and provide project information.

New Schedule of Wages and Supplements.

APPROXIMATE BID DATE :

Additional Occupation and/or Redetermination

PRC NUMBER ISSUED PREVIOUSLY FOR
THIS PROJECT :

OFFICE USE ONLY

B. PROJECT PARTICULARS

5. Project Title _____

Description of Work _____

Contract Identification Number _____

Note: For NYS units, the OSC Contract No. _____

6. Location of Project:

Location on Site _____

Route No/Street Address _____

Village or City _____

Town _____

County _____

7. Nature of Project - Check One:

1. New Building
2. Addition to Existing Structure
3. Heavy and Highway Construction (New and Repair)
4. New Sewer or Waterline
5. Other New Construction (Explain)
6. Other Reconstruction, Maintenance, Repair or Alteration
7. Demolition
8. Building Service Contract

8. OCCUPATION FOR PROJECT :

- Construction (Building, Heavy Highway/Sewer/Water)
- Tunnel
- Residential
- Landscape Maintenance
- Elevator maintenance
- Exterminators, Fumigators
- Fire Safety Director, NYC Only
- 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



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

NYS DOL 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

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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

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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

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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 CONSTRUCTI ON, INC.	444 SCHANTZ ROAD ALLEN TOWN PA 18104	09/17/2020	09/17/2025
DOL	NYC	****5643	NYC LINE CONTRACTORS, INC.		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		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 BISSE SAR		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 RD POMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		SALVATORE A FRESINA A/K/A SAM FRESINA		107 FACTORY AVE P.O BOX 11070 SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	DOL		SAM FRESINA		107 FACTORY AVE P.O BOX 11070 SYRACUSE 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

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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 CORPORATION	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 CONSTRUCTION	21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	NYC		VICKRAM MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DOL		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

NYS DOL 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 CONTRACTIN G, 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 291071-00 Titled Replace Library Roof.
- b. and carrying out all of the duties and obligations imposed upon the Contractor by the Contract Documents.
- c. The main features of the Work shall include, but not be limited to the following:
 - Removal of existing EPDM roof and installation of new built up roofing system. Replacement of full roofing system including vapor barrier, flashing, copings, expansion joints, insulation, crickets, roof drain bowls, vent curbs, and associated components.
 - Selective removal of masonry parapets and installation of new raised masonry parapets.
 - Removal of existing 16x16' skylight and installation of new skylight on new cast-in-place concrete curb.
 - Removal of existing and installation of new data room HVAC split system and associated rooftop condensing unit.
 - Removal, storage and reinstallation of existing dunnage screen wall, perimeter anti-climbing barriers, and fan units to facilitate reroofing work.
 - Library will remain open throughout construction requiring installation of protections for assets and occupants.

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. Projects include: Project 291026 Visual Arts Building.

3. If there are other contracts let for work to be done in and/or adjacent to Work areas, those contracts will have requirements for policies of insurance that are similar to Article V of the Contractor's Agreement, but with coverage and limits commensurate with the work of those other contracts, as determined by the Campus and/or letting agency. If requested by the Contractor, a copy of the contract documents will be made available for review within 15 calendar days after the receipt of the request.

01 18 13 Utility Shutdowns and Cutovers

1. Except as otherwise expressly provided in the Contract Documents, the Contractor shall be responsible for submitting to the Consultant and the Fund, for their approval, a proposed schedule of all utility shutdowns and cutovers of all types which will be required to complete the Project; said schedule should contain a minimum of eight (8) weeks' advance notice prior to the time of the proposed shutdown and cutover. Most campuses of the State University of New York are in full operation 12 months of the year, and shutdowns and cutovers, depending upon their type, generally must be scheduled on weekends, at night, or during holiday periods. The Contract consideration is deemed to include all necessary overtime and all premium time, if any, that is required by the Contractor to complete the shutdowns or cutovers.
2. In the event the Contractor shall disrupt any existing services, the Contractor shall immediately make temporary connection to place such service back into operation and maintain the temporary connection until the Contractor makes the permanent connection. All Work must be acceptable to the Consultant and the Fund.

01 21 43 Time Allowances

1. Time Delay Allowance: In addition to the requirements of Article III of the Agreement, the base bid Contract duration to perform the Work specified in the proposal shall include not less than five (5) consecutive and/or non-consecutive eight hour working days in the Time Progress Schedule for Delays that are of no fault of the Contractor or any of its subcontractors or suppliers or caused by events or conditions that could not be reasonably anticipated. Provide notice of Delay per Section 3.04 and request use of this time allowance. When approved by Consultant, the time allowance is expended for each workday that the contractor is unable to work and all Delay time used is tracked in the Time Progress Schedule. After this base bid time allowance for Delay is expended, comply with the requirements of Article III for any additional Delays.

01 23 00 Alternates (Section B)

1. General
 - a. The extent and details of the Alternates are indicated on the Drawings and described in the Project Manual.
 - b. Where reference is made in the description of the Alternate to products, materials, or workmanship, the specification requirements applicable to products, materials or workmanship in the Total Bid shall govern the products, materials, and workmanship of

the Alternate as if these specification requirements were included in full in the description of the Alternates.

2. Alternates:
None

01 26 13 Requests for Information

1. In the event that the Contractor determines that some portion of the Drawings and Project Manual for the project requires clarification or interpretation by the Consultant per 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. Article II, Section 2.06, DELETE "Instructions" and paragraph (4).

3. Not Used.

4. 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 10% for Minority-Owned Business Enterprises ("MBE") participation and 10% 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 10% 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."

5. Amend the Agreement as follows:

In Article IX, Use of Service-Disabled Veteran-Owned Business Enterprises in Contract Performance, paragraph (5), change "«SDVOB_goal»%" to "3%"

01 29 00 10 Payment to Campus for Utilities

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

1. 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

1. Perform exploratory demolition to discover subsurface and other physical conditions that differ substantially from those shown on or described or indicated on the Contract Drawings. Exploratory demolition shall begin upon receipt of the Notice to Proceed and occur in locations selected in coordination with the Consultant. Exploratory demolition includes removal of portions of the building and site construction, improvements, systems, fixtures and finishes. Perform demolition in a controlled manner so as to not affect Asbestos Containing Materials, Presumed Asbestos Containing Materials, Mechanical, Electrical, Plumbing and other building systems in ceilings, wall cavities, pipe chases and other concealed spaces. Where required to expose existing conditions, perform selective abatement of asbestos and other Work in Divisions 2 through 28 of the technical specifications. Provide access to the Consultant to visually inspect conditions uncovered. As required by Section 2.12 of the Agreement, notify the Consultant of physical conditions discovered during exploratory demolition. Provide temporary barriers and coverings over the uncovered areas. Provide

control measures to properly limit the spread of dust, debris, and other materials. Legally dispose of debris generated during the selective exploratory demolition.

2. Exploratory demolition shall be paid for as a Field Order in accordance with Section 4.05A of the Agreement.

01 31 19 Field Meetings

1. Periodic job meetings will be scheduled by the Consultant during the course of construction. The Contractor, and, upon request of the Consultant or the Fund, its principal subcontractors and manufacturer's representatives, shall attend such meetings and be prepared to furnish answers to questions on progress, workmanship, requests for Information, supplementary information, scope and price for extra work, if any, or any other subject on which the Consultant or the Fund might reasonably require information.
2. In addition to the requirements of Section 3.06 of the Agreement, the Contractor shall submit bi-weekly reports to the Consultant summarizing the last two weeks of Work and next two weeks of Work anticipated, listing the percent of Work complete by trade, tabulating manpower utilized / projected, relevant shop drawing and submittals progress, relevant offsite fabrication progress and providing other information which may be reasonably required to understand the progress of the work.
3. In addition to the above referenced meetings, the Contractor shall schedule and manage periodic coordination meetings at the site between it and all its trades, subcontractors, suppliers, manufacturers, etc. to settle the allotment of Work per Article I, Section 1.07 of the Agreement and to review progress on submittals and shop drawing, progress on installation of the work, conflicts between work of trades, compliance with the design intent, adherence to the Contractor's schedule, quality control, planning for commissioning and training of Campus personnel, and other items which require coordination and sharing of information. Representatives of the Consultant and the Fund may attend these meetings to observe and make comments. These meetings shall be held a minimum of once per month and more frequently where required to effectively coordinate the construction. The Contractor shall prepare and distribute summary minutes of these meetings within 5 working days of the meeting, in accordance with the "Document Tracking and Change Control Paragraph" of this section. Distribution of the coordination meeting minutes shall be to all attendees with copies to the Fund and Consultant whether they are in attendance or not.
4. The personnel representing the Contractor and its principal subcontractors shall have the authority to make decisions directly affecting the work.
5. In addition to the above meetings, meet to review fire safety periodically during the Work and, starting approximately sixteen weeks prior to the scheduled date of substantial completion, the Contractor's principals, project manager and those of its significant subcontractors shall attend additional weekly meetings with the Owner and its consultant(s) to review the progress on preparing close out deliverables, including those in Sections 01 78 23, Operating Instructions and Manuals, 01 78 36, Warranties and 01 79 00, Training of Campus Personnel.

01 31 19 10 Mock ups

1. Progress on the completion of mock ups specified in Divisions 2 through 48 shall be addressed by the Contractor at periodic meetings.
2. Provide a list of mock ups with their dates for installation to begin, installation completion, Consultant review period (which may be up to 15 working days), punch list corrections, and mock up acceptance.
3. For compliance with Section 3.03 of the Agreement, a mock up shall be considered a Sample. Accepted mock ups shall be clearly segregated and marked and remain undisturbed and accessible during the work.
 - a. Accepted mock ups are the Sample and the criteria against which the remaining Work shall be judged.
 - b. Spaces with interior mockups shall have the scheduled lighting fixtures installed, or the equivalent temporary lighting, as approved by the Consultant, during the review and approval period.
 - c. Remove markings when directed by the Consultant.
 - d. Promptly record mock up locations on the Record Drawings.
 - e. Where the markings have been removed and no record exists as to which surface was the mock up, the Consultant may either select a different surface as the mock up or direct the Contractor to install another one, at no additional cost to the owner.
 - f. Unless an accepted mock up is specified to remain in Divisions 2 through 48, demolish and remove mockups when directed by the Consultant.
4. Installation methods, environmental conditions and other contractor employed means and methods for installing the mock up may be observed by the Consultant and shall be employed and maintained in all remaining work. Workers performing the mock up Work shall be employed for installation the remaining work. At any time during the remaining work, if additional workers are employed, they may be requested to demonstrate competency by providing a mock up of their work.
5. In addition to the mock ups that are specified in Divisions 1 through 48, inclusive and for the purposes of determining if workers are suitable and competent in accordance with Section 2.07 of the Agreement, the Consultant may direct the Contractor to have workers provide mock ups to demonstrate their ability to properly perform their Work prior to performing Work that will be part of the completed Project.

01 31 19 33 Pre-Installations Meetings

1. Attend meetings to coordinate the efforts of all concerned parties with construction activities and to demonstrate that adequate preparations for particular construction activities have been completed. These meetings are required for any mobilization, demolition work, excavation, removal of any demolished or excavated material from the site, 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 twice a week during the first four 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. <https://www.purchase.edu/calendar/>

- c. The Work Site will be available to begin construction immediately upon Notice to Proceed. Unless otherwise indicated, normal working hours on the Campus are between 7:00 AM and 4:00 PM.
 - d. On the Date of Substantial Completion in the Proposal, access to the Work area for any uncompleted Work and for punch list items shall be restricted to after 5:00 PM and prior to 7:00 AM, or other times that are convenient for the Campus, and comply with the following:

- 3. Methods of performing Work shall not hinder or disrupt the Campus' occupancy, reduce Campus provided levels of cleanliness and ambient environmental conditions and affect building systems, services, and utilities serving the building unless, upon completion of each shift's work that is performed outside of normal Campus work hours, the Contractor provides cleaning to return the Work areas to a similar level of cleanliness as normally provided by the Campus, returns spaces to their normal ambient environmental conditions and restores building systems, services, and utilities serving the occupancy.
 - 4. No material or equipment shall remain inside the building unless in the active use and control of Contractor personnel.
 - 5. The Contractor shall provide all utility relocations and re-routings necessary to maintain the existing utilities at their level of service being used by the occupants, including limiting their shutdowns for tie-ins and cutovers to those periods specified. All new Work shall be in place, tested and accepted prior to performing a shutdown for the required tie in.

01 32 13 10 Scheduling of Work - Contractor's Coordination with locality

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. After receipt of the Notice of Award but before receipt of the Notice to Proceed, the Contractor, unless otherwise directed by the Fund, shall update the working plan and schedule previously submitted in accordance with the Information for Bidders to define the contractor's planned operations during the first 120 days and submit it to the Fund and the Consultant for their acceptance. The updated working plan and schedule shall be in the form of suitable charts, diagrams or bar graphs and shall be based on the Contractor's logic and time estimates. When updated, such plan and 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. The Notice to Proceed may be withheld until this schedule is received and is deemed responsive to the project requirements.
 - b. After receipt of the Notice to Proceed but before processing second progress payment application, the Contractor, unless otherwise directed by the Fund, shall submit to the Fund and the Consultant for their acceptance its proposed working plan and project time schedule for all the Work covered by the Contract, and shall include activities for preparation and submission of all Shop Drawings and Samples and show all Contractor provided tests that are specified in Divisions 1 through 48, inclusive. Said proposed working plan and schedule shall be prepared in accordance with the form and requirements set forth in the preceding paragraph. 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. Submit one PDF and the electronic file in its native format.
 - c. The aforesaid proposed working plan and schedule shall be revised by the Contractor until they are satisfactory to the Fund and the Consultant, and the same shall be periodically updated every 30 days thereafter. Whether or not the Consultant and the Fund have accepted the Project Schedule, submit the Project Schedule to the Fund and the Consultant for acceptance at such time or times as the Fund or the Consultant may request.
 - d. The proposed working plan and schedule, including any revision or revisions thereof, when accepted by both the Fund and the Consultant will become the Schedule of Record (SOR). The SOR, as the same may be revised as stated above by the Contractor and accepted by the Fund and the Consultant, shall be strictly adhered to by the Contractor.
 - e. 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.

2. Milestone Dates & Summary Activities

- i. Notice to Proceed (Milestone Date)
- ii. Mobilization
- iii. Site Preparation & Protections
- iv. Demolition
- v. Installation of vapor barrier
- vi. Masonry parapets and flashings
- vii. Delivery of Skylight
- viii. Installation of Skylight
- ix. Insulation & final roofing system
- x. M-E-P (Mechanical, Electrical, Plumbing) Rough-In & Major Equipment Installation
- xi. Testing, Training & Commissioning
- xii. Substantial Completion (Milestone Date)
- xiii. Start of Guarantee Period
- xiv. Final Completion - All punch list/outstanding items satisfied (Milestone Date)

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 Required

01 32 33 30 Roof Inspection

Not Required

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.
- g. Those marked "*REJECTED*" are not in accordance with the Contract Documents and shall be resubmitted.
- h. "*REVISE AND RESUBMIT*" Contractor shall correct and resubmit.
- i. "*MAKE CORRECTIONS NOTED*": The contractor shall comply with corrections and may proceed. Resubmittal is not required.
- j. "*APPROVED - NO EXCEPTIONS TAKEN*": The contractor may proceed.
- k. 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.
- l. 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
 - m. Provide information regarding shop drawings, submittals and samples at the Periodic Meetings.
 - n. 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.
 - o. 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.
2. Paper prints (hard copies) of reviewed submittals:
- a. Provide 2 (two) 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.

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. 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: Replace Library Roof

- 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:

None

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) Stairs will not be available for the Contractor's use. Provide a non-combustible temporary stair towers as noted on the drawings to the worksite meeting the following requirements:

- 1) Clear width of stair and landings shall be 36" with 6'-8" clear headroom.
 - 2) Riser height shall not exceed 7" and tread width shall not be less than 11".
 - 3) Handrails shall be on both sides between 34" and 38" above tread/landing, be continuously graspable and have a 1 ¼" circular cross section.
 - 4) Each level will have clear signage identifying the level, stair and exit path.
- d) Prior to starting demolition, to maintain occupied spaces with their current services and utilities, trace all services and utilities, identify their respective areas and zones of service, both within the Work area and outside to Work area. Two weeks prior to start of demolition, submit a written plan for each service and utility describing how such services and utilities will be temporarily maintained, shutdown, disconnected and cut, and/or permanently reconnected. Field tracing, testing and identification of services and utilities that requires their temporary shutdown will be done after hours or on weekends.
- 1) The plan should clearly identify any impairment of fire protection system(s), exit signs, exit lighting and/or other code required life safety systems. Add dates and durations of impairments to the Project Schedule.
 - 2) The Project Schedule should allow for the presence of the Campus Fire Prevention Program Superintendent at the time fire protection system(s), exit signs, exit lighting and/or other code required life safety systems are shut off and at the time such systems are restored to partial/full service.
- e) When moving any items (materials, equipment, supplies, tools or other items) through exits, exit access spaces and site areas shared with the Campus during occupied hours, provide radio equipped flagger(s) whose sole responsibilities are: (1) to direct pedestrian and vehicular traffic as required to permit the safe transport of the items from the staging area to the Work area; (2) to inspect the paths traversed to confirm that they are clean, safe and ready for the Campus to resume using; and (3) to confirm that gates, doors, fences, barricades and other temporary controls intended to separate the public from the area(s) controlled by the Contractor are properly restored.
- f) Other than materials required for a work shift, storage of materials shall not be permitted in building spaces shared with the Campus. Do not leave any materials, equipment, partially installed work, etc. in a manner that prevents full operational access by the Campus to the spaces outside the areas controlled exclusively by the Contractor. Only the material which can be used in one shift shall be moved into the spaces shared with the Campus. All other material shall be stored in the areas exclusively controlled by the Contractor. During the work shift, materials, tool boxes, etc. may be dispersed throughout the Work locations shared with the Campus, as required to perform the work, but shall be continuously attended to, neatly organized and located in a manner that does not create tripping hazards and/or reduce the clear travel path of exits and exit access spaces. All tools and excess material, if any, dispersed through the Work locations shared with the Campus shall be collected prior to the end of each shift and moved to the approved staging area.
- g) The contractor shall leave the interior building access path to and from the Work areas vacuum clean after the completion of each day's work.
- a) Fire safety during construction: 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. Campus permit forms can be found at the following link: <https://www.purchase.edu/offices/environmental-health-and-safety/programs-and-procedures/forms-and-permits/>

- 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. 291071-00

Project Title: Replace Library Roof

Section Number	Section Name	Description of Delegated Design (See Section for complete details)
08 62 00	Unit Skylights	16x16' architectural skylight and associated anchoring

Note: The above list provides a general summary of work delegated in the technical specifications and may not be all inclusive. In case of conflict or omission, the requirements of the technical specifications take precedence over the above list.

01 41 13 Code Compliance and Testing (In addition to Section 2.10 of the Agreement)

1. The Fund, if the same is required by law, will issue a Building Permit for this Project. The project is not subject to any local building code or permit requirements, except for Work that the Contractor is to perform on property located outside of the boundaries of the campuses of the State University of New York or on systems or equipment within the boundaries that are owned or controlled by others such as utility companies.

2. Special Inspections: This project may contain Work requiring Special Inspections in accordance with the Building Code of New York. The Fund and the Consultant shall exercise control to verify that the construction conforms to the Contract documents. In addition to the requirements of Section 2.17 of the Agreement, cooperate with and provide safe access for inspection and testing agencies, as reasonable to allow inspections and tests to be performed. This will require the Contractor to provide and attend to / operate scaffolding, ladders, or lifts. This project may also contain Work requiring the construction of a main wind- or seismic-force-resisting system, designated seismic system or a wind- or seismic-resisting components and the Contractor shall have provisions for quality control.
 - a) See the Statement of Special Inspections bound after this Section for the project specific Special Inspections program.
 - b) Prior to start of Work that requires code inspections, schedule pre-inspection meeting with the Consultant, Fund and Campus review required inspections and how and when they will be performed.

3. All Work involving installation and modification to fire alarm systems shall be performed by individuals or firms currently licensed by the NYS Department of State, Division of Licensing Services. The contractor shall provide copies of the individual's or firm's current license and identification cards for all unlicensed employees performing work for the licensed individual or firm for this project. The Contractor shall post a copy of the license at a location approved by the Consultant.

4. In addition to the requirements of Section 2.17 of the Agreement, before performing system tests, partial system tests or scheduling inspections for fire alarm, fire suppression, electrical, mechanical, plumbing, elevator, site infrastructure and other work that must be completed for a Temporary

Authorization to Occupy and/or a Code Compliance Certificate, attend pre-test and inspection meetings for each system with the Consultant.

- a) Provide a list of all Contractor provided tests that are specified in Divisions 1 through 48, inclusive, and list portions of large systems tested separately (see 01 74 00, Clean-Up, for separation criteria), who will perform a test, when it will be done, who witnessed it and when, results (pass/fail), follow up action, comments and other information requested by the Consultant.
- b) The Consultant will review the scope of inspection of the as built installation, review the completeness of the record drawings per Section 2.24 of the Agreement, review the scope applicable tests and review the applicable forms that will be completed as part of the testing and inspection.
- c) Immediately after completion of tests, provide original forms with all information filled out plus six copies to the Consultant. Systems required for Substantial Completion will not be considered completed and accepted until all code required forms are completed, submitted and reviewed by Consultant for completeness. For fire protection systems, provide the Statement(s) of Compliance required by Fire Code part 901.2.1.
- d) Where portions of systems are completed and ready for testing and inspection, those portions will not be considered completed and accepted until all code required forms are completed to the extent applicable to the portion of Work completed, submitted and reviewed by Consultant for completeness.
- e) Where portions of systems are excluded from the portions being tested, provide additional Work required to functionally extend systems around the excluded portions and to fully separate the tested portions from the excluded portions.
- f) Schedule testing that requires safety clearance or impacts Campus activities (such as, but not limited to, x-ray testing of welds) and/or testing that requires utility shutdowns for weekends, holidays and/or 2nd or 3rd shift, as appropriate to accommodate the Campus and mitigate disruption to Campus activities.
- g) Unless otherwise approved by the Fund, all Contractor provided tests that are specified in Divisions 1 through 48, inclusive, must be witnessed and signed off by the Consultant prior to acceptance of the tested work; and, in the Contract Breakdown required by Section 4.08 of the Agreement, the scheduled value of Contractor provided tests shall be 5% of the amount estimated for the Work being tested.
- h) In addition to the above testing, and if mechanical, hot water and/or lighting control systems are included in the work, cooperate with the Consultant to complete the commissioning of mechanical, hot water systems and functional testing of lighting controls. Provide a single competent person as the point of contact for all commissioning required in this contract. As applicable, provide workers, equipment, computer programming, fuel, power, means of access, operating instructions and manuals (see Section 01 78 23) and other work required to demonstrate installation, operation, functionality, calibration and other performance criteria of such systems.

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. ($\leq 1/2$ 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 contract, if any, that 1) disables any fire suppression systems, standpipes systems, fire alarm systems, fire detection systems, smoke control systems and/or smoke vents as defined in Chapter 9 of the Fire Code of New State (FCNYS) or 2) involves welding, cutting, grinding, open torches and other hot work as defined in

Chapter 26 of the FCNYS and / or 3) involves demolition activities that are hazardous in nature as defined in the applicable provisions of the Fire Safety During Construction and Demolition chapter of the Fire Code of New York State (FCNYS) in the New York State Uniform Fire Prevention and Building Code. In accordance with Section 901.7 of the FCNYS, for structures that have Campus occupancy, either provide a fire watch or perform the Work during the hours where the building is scheduled by the Campus to be closed. If a fire watch is required, provide all labor that is required. The Contractor shall:

- (1) Contact the New York State Department of State Office of Fire Prevention and Control (OFPC) at Phone: (518) 474-6746, by email: fire@dhses.ny.gov and obtain its currently amended recommendation for fire watch procedures. Review the OFPC recommendations and notify the consultant if there are significant discrepancies with the requirements of this section.
 - (2) Review the fire watch procedures with the Campus Fire Prevention Program Superintendent, Campus alarm monitoring staff, and the fire department prior to disabling a fire protection system. Submit the plan for the fire watch for approval by consultant and Campus, and schedule pre-system shutdown meeting with consultant, Campus and Fund. The plan should describe how false alarms will be managed and who will be responsible for fire and police departments costs for responding to false alarms..
 - (3) Employ, instruct and maintain competent fire watch personnel. Provide the sufficient number of dedicated personnel that are required to patrol all portions of the means of egress system in the facility in the period of time required.
 - (4) Notify the Campus alarm monitoring staff prior to and at the conclusion of the fire watch.
 - (5) Notify the local fire and police departments that the system is “Out of service” and again when the system has been repaired or restored to service.
 - (6) Employ competent personnel to fix the fire protection system(s).
- b. Fire Watch Duties: Personnel serving as a fire watch have the following duties:
- 1) Conduct periodic patrols of the entire facility as specified below.
 - 2) Identify any fire, life or property hazards or the warning signs of fire.
 - 3) Notify the Campus alarm monitoring staff and the fire department if a fire is discovered by calling 911 with the exact address and type of emergency.
 - 4) Notify occupants of the facility of the need to evacuate. If the sirens or public address function of the alarm system are still functional, use them to assist with evacuation of the building.
 - 5) Have access to at least one means of direct communication with the fire department. A telephone is acceptable.
 - 6) Maintain a written log of fire watch activities
 - 7) Have knowledge of the location and use of fire protection equipment, such as fire extinguishers. (Note: The fire watch will not perform fire-fighting duties beyond the scope of the ordinary citizen.)
 - 8) Perform no other duties that are not directly part of the fire watch duties.
- c. Frequency of Inspections: Fire watch personnel should patrol the entire facility every 30 minutes except in the following situations, where patrols shall be every 15 minutes:
- (1) The facility has people sleeping.
 - (2) The facility is an institutional occupancy.
 - (3) The facility is an occupied assembly or educational occupancy.

- d. Record Keeping: A fire watch log should be maintained at the facility. The log should show the following:
- (1) Address of the facility
 - (2) Times that the patrol has completed each tour of the facility
 - (3) Name of the person(s) conducting the fire watch.
 - (4) Record of communication(s) to the fire department and monitoring company.
 - (5) Record of other information as directed by the Consultant and the Fund.

01 51 23 Temporary Heating and Cooling

Not Applicable.

01 51 26 Temporary Light

Not Applicable.

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

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. Office furniture shall be new and consist of the following items:
 - a. Four (4) swivel desk chairs HIWML.
3. Provide exterminating services for trailer maintenance.
4. Provide manually-operated window blinds for (10) 5'-0" x 3'-0" windows.
5. Provide new trailer skirting in quantity: 20 LF

01 52 19 Temporary Sanitary Facilities

1. The Contractor shall install and maintain (at its own cost) temporary, sanitary facilities at an approved location.

- 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

The contractor is not permitted to make temporary use of any of the building's elevators.

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

1. With the award of a Contract the Campus will, unless otherwise specified, designate the sections of roadway under Contract a Restricted Highway pursuant to Section 104A of the Highway Law and Section 1625 of the Vehicle and Traffic Law. Pursuant to these legal sections, the Campus has the authority to (1) establish maximum and minimum speed limits at which vehicles may proceed along any such Restricted Highway; (2) establish weight and dimension limits of vehicles; (3) regulate the use of such Restricted Highway by pedestrians, equestrians, and animals; (4) regulate parking, standing, stopping, and backing of vehicles; (5) control persons and equipment engaged in work on such highway. When used on such Restricted Highways, all contractor-provided traffic control devices shall be considered as official traffic control devices and shall conform to the MUTCD. Signs indicating such restrictions shall be placed at such points as deemed necessary for the safe use of the Restricted Highway. The traveling public and Contractor must observe and comply with these restrictions, as

posted, except that the Contractor may be allowed greater latitude with respect to size and weight of construction equipment.

2. The Manual on Uniform Traffic Control Devices (MUTCD) consists of the Manual on Uniform Traffic Control Devices for Streets and Highways (approved by the FHWA) and the New York State Supplement to the National Manual on Uniform Traffic Control Devices for Streets and Highways, as currently amended. These documents prescribe standards for the design, location, use, and operation of traffic control devices required by this work.
3. Prepare and submit Temporary Traffic Control plans. Plan shall be prepared by persons knowledgeable (for example, trained and/or certified) about the fundamental principles of Temporary Traffic Control and work activities to be performed. Traffic control planning shall be completed for all road construction, utility work, contractor operations, and incident management prior to occupying the Temporary Traffic Control zone.
4. The Contractor shall provide all temporary signage for traffic control when necessitated by the Work in conformance with the MUTCD. Lane closures on Campus roads shall be permitted provided the Contractor maintains one lane with full access and provides radio equipped flaggers in compliance with NYS DOT "Standard Specifications".

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 in compliance with all applicable federal and state rules and regulations, including EPA rule 40 C.F.R. Part 112. The Campus may add the contractor's

certification(s) to 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. 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

Not Applicable.

01 66 00 Equipment Storage and Handling Requirements

1. Store equipment in accordance with the manufacturer’s recommendations, including, but not limited to, providing anti-condensation heaters for electrical or other equipment, or other temporary measures to mitigate impact of environmental conditions in the storage location when such conditions vary from manufacturer recommendations. In addition to the requirements of the technical specifications and Sections 4.13 and 4.14 of the Agreement, for equipment that is stored, delivered and/or installed for Work not yet accepted by the Fund, provide and maintain a preventive maintenance log (Log) that documents maintenance activities performed. (See Sections 4.13 and 4.14 of the Agreement, which requires the Contractor to perform these maintenance activities.)
2. In the Log, list equipment individually. For equipment listed, list the manufacturers’ recommended maintenance activities; recommended maintenance tools, lubricants, parts and other items needed to perform maintenance; recommended frequency for performing maintenance activities; the qualifications of the workers performing the maintenance activity; anticipated/scheduled dates for performing the maintenance activity; the actual date the maintenance activity was performed; the name of the Contractor’s employee who supervised performance and other information requested by the Consultant. See sample layout below:

preventive maintenance log									
Equipment	manufacturers' recommended maintenance activities	maintenance tools, lubricants, parts and other items	frequency of activity	qualifications of the workers	anticipated/scheduled dates	actual date performed	Name of supervisor	Other	Comments
Item name	Lubricate lubrication points	ISO Grade 32 synthetic lubricant	after each 50 hours of use	Trained in accordance with manufacturer's guidelines	xx/xx/xxxx	xx/xx/xxxx	Mr. Contractor		May need to perform every 25 hours due to jobsite environmental conditions

- a. Prior to delivery of equipment to the Site or storage location, submit the Log to the Consultant for approval.
- b. After delivery of equipment, upon periodic requests of the Consultant, submit the Log for inspection and review.
- c. Prior to acceptance of equipment, submit the Log showing all maintenance activities completed for the equipment proposed for acceptance.
- d. Provide timely notification and access for the Consultant and the Fund to witness any preventive maintenance activities listed in the Log.
- e. In addition to the above maintenance, where equipment or systems are used during construction for temporary purposes (such as heating, cooling, or other construction

uses), provide additional maintenance, cleaning and other activities recommended by the manufacturer for the environmental conditions in which their equipment operates.

01 71 23 Field Engineering

Not Applicable.

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

Not Applicable.

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.

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 two (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

Not Applicable.

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

PROJECT No.

291071

Contractor Job #:

Project Name:

Replace Library Roof

Revised By:

DATE:

Contractor ID No.	CSI Section No.	Paragraph No.	Revision / Version No. (if appl.)	Description / subject of Submittal	Submittal Action Category
	00 52 00	Section 2.18		List of Subcontractors	Action
	00 52 00	Section 2.12		Site Conditions	Informational
	00 52 00	A-Sec 2.24(3)		Record Drawings	Informational
	00 52 00	A-Sec 3.06		Monthly Reports	Informational
	00 52 00	A-Sec 4.08		Schedule of Values	Action
	00 52 00	A-Sec 6.07-1		MBE/WBE Monthly Utilization Reports (online only)	Informational
	00 52 00	A-Sec 2.06		Superintendent Submission	Action
	01 18 13			Utility Shutdown Schedule	Action
	01 26 13			Request for Information (RFI) log	Action
	01 29 00 10			Meter readings	Informational
	01 31 19			bi-weekly reports	Informational
	01 31 13 10			Existing Conditions reports	Informational
	01 32 13 10			Off campus street access	Informational
	01 32 16			Project Schedule and Submittal Schedule	Action
	01 32 33			Project Photographs	Informational
	01 33 23			Submittal management website	Action
	01 33 23			Archival submittals	Informational
	01 33 23 10			Coordination Drawings	Action
	01 33 29			Sustainable Design Reporting	
	01 35 13			emergency action plan	Informational
	01 35 13			daily reports	Informational
	01 57 23			SWPPP modifications	Informational
	01 57 23			SWPPP inspection logs	Informational
	01 41 16			Diesel vehicle forms	Informational
	01 55 26			Temporary Traffic Control plans	Action
	01 35 13			ID Badge Format	Informational
	01 35 13			daily manpower counts	Informational
	01 35 23			Safety Procedures Manual	Informational
	01 35 23			Names of "competent" persons	Informational
	01 35 23			Pre-Demolition utility plan	Informational
	01 35 23			Approved Confined Space Permits	
	01 35 23			Temporary Egress / Barrier Plan	Informational
	01 35 23 10			MSDS sheets	Informational
	01 41 13			Special Inspection submissions	Action
	01 41 13			Fire Alarm System License	Informational
	01 41 13			Code test and inspection forms	Action
	01 41 13			Name of Commissioning contact	Action
	01 51 16			Fire watch plan	Action
	01 41 16			Cooling tower maintenance plan	Action
	01 52 13			Field Office equipment information	Action
	01 54 13			Plan for Use of Elevator(s) for Construction	Action
	01 55 29			lifting procedure safety plan	Informational
	01 55 29			Petroleum Spill Compliance Certification	Informational
	01 60 00 20			Vermiculite origins certification	Informational
	01 64 00			Campus-Furnished Products submittals	Action
	01 66 00			Preventive maintenance log	Action
	01 71 23			Field Engineering surveys	Informational
	01 73 00 10			Information for Rebates/Grants/Awards/Programs	Informational

PROJECT No. 291071

Contractor Job #:

Project Name: Replace Library Roof

Revised By:

DATE:

Contractor ID No.	CSI Section No.	Paragraph No.	Revision / Version No. (if appl.)	Description / subject of Submittal	Submittal Action Category
	01 74 00			Fluid system flushing and Clean Up plan	Informational
	01 74 00			Final Cleanup Plan	Informational
	01 74 16			Planting Maintenance logs	Informational
	01 74 19			Construction Waste Management Plan	Action
	01 74 19			Construction Waste manifests/monthly reports	Action
	01 78 23			Operating Instructions and Manuals	Action
	01 78 36			Warranties	Action
	01 79 00			Schedule of Campus training	Action
	01 79 00			Outlines of actual training	Action
Consultant adds submittals listed in Technical specs after the above					
Consultant should also adjust print area to only include rows with text					
	04 20 00			Sample brick	Action
	04 20 00			Shop Drawings	Action
	04 20 00			Technical installation information	Action
	04 20 00			Construction procedures	Action
	06 20 00			Product information	Action
	07 01 50			Product data	Action
	07 01 50			Roofing coordination plan	Action
	07 01 50			Qualifications for installer	Action
	07 01 50			Field test reports	Action
	07 01 50			Photo report of existing conditions	Action
	07 52 10			List of materials	Action
	07 52 10			Product data	Action
	07 52 10			Manufacturers installation data	Action
	07 52 10			Samples & mockup	Action
	07 52 10			Shop drawings	Action
	07 52 10			Application of Manufacturer's Warranty	Action
	07 52 10			Warranties	Action
	07 52 10			Manufacturers'/Contractors' Review	Action
	07 62 00			Samples	Action
	07 62 00			Shop drawings	Action
	07 71 00			Shop drawings	Action
	07 84 13			Product data	Action
	07 84 13			Shop drawings	Action
	07 84 13			Material Safety Data Sheets	Action
	07 84 13			Qualifications for installer	Action
	07 84 13			Engineering Judgment	Action
	07 92 00			Shop drawings	Action
	07 92 00			Samples	Action
	07 92 00			Product data	Action
	07 92 00			Manufacturers certification	Action
	07 92 00			Testing data	Action
	08 63 00			Product data	Action
	08 63 00			Shop drawings	Action
	08 63 00			Samples for Initial Selection	Action
	08 63 00			Samples for Verification	Action
	08 63 00			Installer Certificates	Action
	08 63 00			Product Test Reports	Action
	09 96 00			Sustainability Data	Action
	05 50 00			Manufacturer's Literature	Action
	05 50 00			Shop Drawings	Action
	05 50 00			Certification	Action

PROJECT No. 291071

Contractor Job #:

Project Name: Replace Library Roof

Revised By:

DATE:

Contractor ID No.	CSI Section No.	Paragraph No.	Revision / Version No. (if appl.)	Description / subject of Submittal	Submittal Action Category
	02 41 19			Schedule of Demolition Operations	Action
	02 41 19			Notice of Differing Conditions	Action
	02 41 19			Shop Drawings	Action
	22 13 16			Product data	Action
	22 13 16			Shop drawings	Action
	22 13 16			Seismic Qualification Certificates	Action
	22 13 16			Field quality-control reports	Action
	22 13 19			Shop drawings	Action
	22 13 19			Field quality-control reports	Action
	22 13 19			Operation and Maintenance Data	Action
	22 14 23			Product data	Action
	23 05 53			Product data	Action
	23 05 53			Samples	Action
	23 05 53			Equipment Label Schedule	Action
	23 05 93			Qualification Data	Action
	23 05 93			Contract Documents Examination Report	Action
	23 05 93			Strategies and Procedures Plan	Action
	23 05 93			System Readiness Checklists	Action
	23 05 93			Examination Report	Action
	23 05 93			Certified TAB reports.	Action
	23 05 93			Sample report forms.	Action
	23 05 93			Instrument calibration reports	Action
	23 07 19			Product data	Action
	23 07 19			Material Test Reports	Action
	23 07 19			Field quality-control reports	Action
	23 23 00			Product data	Action
	23 23 00			Shop drawings	Action
	23 37 23			Product data	Action
	23 37 23			Samples	Action
	23 37 23			Samples for Initial Selection	Action
	23 37 23			Samples for Verification	Action
	23 37 23			Delegated-Design Submittal	Action
	23 05 13			Product data	Action
	23 05 13			Shop drawings	Action
	23 05 13			Samples for Initial Selection	Action
	23 05 13			Field quality-control reports	Action
	23 05 13			Warranties	Action
	23 05 13			Operation and Maintenance Data	Action
	26 00 00			Product data	Action
	26 00 00			Shop drawings	Action
	26 05 19			Product data	Action
	26 05 19			Sustainable Design Submittals	Action
	26 05 19			Product Schedule	Action
	26 05 29			Product data	Action
	26 05 29			Delegated-Design Submittal	Action
	26 05 29			Coordination Drawings	Action
	26 05 29			Welding certificates	Action
	26 05 33			Product data	Action
	26 05 33			Shop drawings	Action
	26 05 33			Coordination Drawings	Action
	26 05 33			Source quality-control reports	Action
	26 05 33			Warranties	Action
	26 28 13			Product data	Action

Weekly Fire Code Review

SUCF Project No.

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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Temporary Enclosures {4.3.1}: Are all panels, tarps, plastic sheeting, etc. flame retardant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Impairments {IFC Section 1003}: <input type="checkbox"/> Have paths of egress from occupied areas been maintained? {IFC Section 1003}: <input type="checkbox"/> 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}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Fire Extinguishers {4.3.4}: <input type="checkbox"/> Are appropriate fire extinguishers readily available, with a maximum travel distance of 50 feet? <input type="checkbox"/> Have fire extinguishers been provided within temporary enclosures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Internal Combustion Devices {4.4}: <input type="checkbox"/> Are all internal combustion devices, where required, exhausted outside, with a least 9 inches between exhaust and combustible materials? <input type="checkbox"/> Is refueling only done on cool engines?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Temporary Heating {5.2}: Is temporary heating equipment listed and being used according to the manufacturer's requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Hot Work Programs {5.1}: <input type="checkbox"/> Is there a current permit for ongoing operations? <input type="checkbox"/> Are all precautions required by the permit in place? <input type="checkbox"/> Is there a dedicated fire watch? <input type="checkbox"/> Does the fire watch extend after the completion for work (e.g., usually minimum of 30 min. in general or 2 hrs for roofs)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Waste {5.4}: Are accumulations of waste materials, dust, and debris removed at the end of each shift (or more frequently as needed)? <input type="checkbox"/> Are materials subject to spontaneous ignition (e.g., oily rags) stored in listed disposal containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Trash Chutes {5.4}: Are trash chutes non-combustible, or provided with sprinkler protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Compressed Gases { IFC Chapter 53}: Are compressed gases properly stored and being used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Weekly Fire Code Review

SUCF Project No.

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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Temporary Enclosures {4.3.1}: Are all panels, tarps, plastic sheeting, etc. flame retardant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Impairments {IFC Section 1003}: <input type="checkbox"/> Have paths of egress from occupied areas been maintained? {IFC Section 1003}: <input type="checkbox"/> 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}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Fire Extinguishers {4.3.4}: <input type="checkbox"/> Are appropriate fire extinguishers readily available, with a maximum travel distance of 50 feet? <input type="checkbox"/> Have fire extinguishers been provided within temporary enclosures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Internal Combustion Devices {4.4}: <input type="checkbox"/> Are all internal combustion devices, where required, exhausted outside, with a least 9 inches between exhaust and combustible materials? <input type="checkbox"/> Is refueling only done on cool engines?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Temporary Heating {5.2}: Is temporary heating equipment listed and being used according to the manufacturer's requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Hot Work Programs {5.1}: <input type="checkbox"/> Is there a current permit for ongoing operations? <input type="checkbox"/> Are all precautions required by the permit in place? <input type="checkbox"/> Is there a dedicated fire watch? <input type="checkbox"/> Does the fire watch extend after the completion for work (e.g., usually minimum of 30 min. in general or 2 hrs for roofs)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Waste {5.4}: Are accumulations of waste materials, dust, and debris removed at the end of each shift (or more frequently as needed)? <input type="checkbox"/> Are materials subject to spontaneous ignition (e.g., oily rags) stored in listed disposal containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Trash Chutes {5.4}: Are trash chutes non-combustible, or provided with sprinkler protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Compressed Gases { IFC Chapter 53}: Are compressed gases properly stored and being used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Statement of Special Inspections

SUCF Project No.: 291071-00 Project Title: Replace Library Roof

Building Name: Library Occupancies: A3, B Risk Category: iii

Registered Design Professionals in Responsible Charge (RDPRC):

	(Name)	(Address)
Architect:	<u>Ronnette Riley</u>	<u>494 Eighth Avenue, 15th FL New York, NY 10001</u>
Structural Engineer:	<u>Sheng Shi</u>	<u>228 East 45th Street. 2nd floor, New York, NY 10017</u>
Mechanical Engineer:	<u>Boggarm Setty</u>	<u>149 W 36th Street 8th Floor New York, NY 10018</u>

- Identification of Seismic-Force Resistance Systems and Wind-Force Resisting systems
- Required Special Inspections, Tests and Observations
- Special Inspector Minimum Qualifications
- Contractor's Statement of Responsibility Form
- Fabricator's Certificate of Compliance Form (*Only needed if there are fabricated items*)
- Special Inspector / Approved Agency Final Report

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

Sheng Shi
(Print name / date)

(Signature)



(Affix professional seal)

Architect

Ronnette Riley
(Print name / date)

(Signature)



(Affix professional seal)

Mechanical Engineer

Boggarm Setty
(Print name / date)

(Signature)

-> Seismic-Force-Resisting Systems:

The Seismic Design Category (SDC) is ____

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

Wind Requirements

Seismic Requirements

Documentation reporting requirements

Refer to Structural drawings for additional information regarding inspection requirements, documentation, and testing.

Refer to specifications sections 07 52 16 Modified Bitumen Membrane Roofing and 08 63 00 Metal Framed Skylight for documentation, reporting and testing of wind requirements.

Refer to specifications section 07 84 13 Firestopping and Smoke Seals for documentation, reporting and testing of Fire-resistant penetrations and joints.

	Category	Special Inspector Minimum Qualifications
<input checked="" type="checkbox"/>	Reinforced Concrete	<input checked="" type="checkbox"/> Current ICC Reinforced Concrete Special Inspector or ACI Concrete Constr. Inspector <input type="checkbox"/> Concrete field testing by an ACI Concrete Field Testing Technical w/ Grade 1 cert. <input type="checkbox"/> Intern Engineer with relevant experience <input checked="" type="checkbox"/> NYS Registered Design Professional Engineer (RDP) with relevant experience
<input type="checkbox"/>	Pre-Stressed Concrete	<u>Pretension Tendons</u> <input type="checkbox"/> Current ICC Reinforced Concrete certification and ACI Concrete Field Testing Technician with Grade 1 certification plus one year relevant experience <input type="checkbox"/> Intern Engineer with relevant experience <input type="checkbox"/> RDP with relevant experience <u>Post-Tension Tendons</u> <input type="checkbox"/> Current Post-Tensioning Institute (PTI) certification <input type="checkbox"/> Intern Engineer with relevant experience <input type="checkbox"/> RDP with relevant experience
<input type="checkbox"/>	Welding	<input type="checkbox"/> Current AWS Certified Welding Inspector <input type="checkbox"/> Current ICC Structural Steel and Welding Certificate plus one year of relevant experience <input type="checkbox"/> Current Level II cert. from American Society for Non-Destructive Testing (NDT) <input type="checkbox"/> Current NDT Level III provided previously certified as NDT Level II
<input type="checkbox"/>	High-Strength Bolting & Steel Frame Inspection	<input type="checkbox"/> Current ICC Structural Steel and Welding certification and one year of relevant experience <input type="checkbox"/> Intern Engineer with relevant experience <input type="checkbox"/> RDP with relevant experience
<input type="checkbox"/>	Masonry	<input type="checkbox"/> Current ICC Structural Masonry certification and one year of relevant experience <input type="checkbox"/> Intern Engineer with relevant experience <input type="checkbox"/> RDP with relevant experience
<input type="checkbox"/>	Sprayed Fire-Resistant Materials	<input type="checkbox"/> Current ICC Spray-Applied Fireproofing certification and one year of relevant experience <input type="checkbox"/> Intern Engineer with relevant experience <input type="checkbox"/> RDP with relevant experience
<input type="checkbox"/>	Excavation and filling; verification of soils; piling & drilled piers; modular retaining walls	<input type="checkbox"/> Current Level II certification in geotechnical engineering technology/construction from the National Institute for Certification in Engineering Technologies (NICET) <input type="checkbox"/> Intern Engineer with relevant experience <input type="checkbox"/> RDP with relevant experience
<input type="checkbox"/>	Inspection of Fabricators	<input type="checkbox"/> Precast: Current ICC Reinforced Concrete certification plus one year relevant experience <input type="checkbox"/> Bar Joist: see welding requirements <input type="checkbox"/> Metal Building: see welding requirements <input type="checkbox"/> Structural Steel: see welding requirements
<input type="checkbox"/>	Seismic Items not addressed elsewhere	<input type="checkbox"/> Qualified person with one year of relevant experience <input type="checkbox"/> Intern Engineer with relevant experience <input type="checkbox"/> RDP with relevant experience
<input type="checkbox"/>	Exterior Insulation and Finish System	<input type="checkbox"/> Intern Engineer with relevant experience <input type="checkbox"/> RDP with relevant experience
<input type="checkbox"/>	Smoke Control	<input type="checkbox"/> Expertise in fire protection engineering, mechanical engineering and certified as an air balancer <input type="checkbox"/> The RDP responsible for design
<input checked="" type="checkbox"/>	Fire-Resistant Penetrations & Joints, Special Cases	<input type="checkbox"/> Qualified person with one year of relevant experience <input type="checkbox"/> Intern Engineer with relevant experience <input checked="" type="checkbox"/> RDP with relevant experience

Contractor's Statement of Responsibility Form

SUCF Project No.: 291071-00 Project Title: Replace Library Roof

Building Name: Library

Contractor: _____

Contractor's Acknowledgement of Special Requirements

I hereby acknowledge that I have received, read and understand there are special requirements contained in the contract documents. I hereby acknowledge control will be exercised to obtain conformance with the contract documents.

As the Contractor, I will coordinate with the Special Inspector(s) in order to accommodate all inspections and tests as required. I will integrate all inspection activities as provided by the Special Inspector into the Project Schedule.

I understand if this box is checked, this project includes the construction of a seismic-force-resisting system and / or a wind-force-resisting system as noted on page 2 of the Statement of Special Inspections.

(Print Name / Signature / Date)

Fabricator's Certificate of Compliance Form

SUCF Project No.: 291071-00 **Project Title:** Replace Library Roof

Building Name: Library **Fabricated Assembly(ies)** _____

Contractor: _____

Fabricator: _____

Fabricated Item: *Structural, load-bearing or lateral load-resisting members of assemblies consisting of materials assembled prior to installation in a building or structure, or subject to operations such as heat treatment, thermal cutting, cold working or reforming after manufacture and prior to installation in a building or structure. Materials produced in accordance with standards referenced by this code, such as rolled structural steel shapes, steel reinforcing bars, masonry units and wood structural panels, or in accordance with a referenced standard that provides requirements for quality control done under the supervision of a third-party quality control agency, are not "fabricated items".*

In lieu of special inspections during fabrication, a fabricator shall provide with the initial shop drawings for consideration:

- The fabricator's written procedural and quality control manuals AND
- Documentation from the most recent audit of fabrication practices.

Company that conducted the Audit:

Date of Last Audit: _____ **Name:** _____

Contact Person: _____ **Address:** _____

For ease in evaluation, the Fabricator may attach copies of a Fabricator's Certification or a copy of the latest building code evaluation service report, if applicable.

Date of most recent Approval: _____ **Certificate Number:** _____

Certificate Issued by: (Name) _____ **Address:** _____

Contact Person: _____

Post Fabrication Certification:

Provide a description of the structural, load bearing or lateral load-resisting assemblies that have been fabricated:

I hereby certify the items described above were fabricated in strict accordance with the approved contract documents.

(Print Name / Signature)

(Print Title)

Special Inspector / Approved Agency Final Report to RDPRC

SUCF Project No.: 291071-00

Project Title: Replace Library Roof

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)

300 Kimball Drive Parsippany, NJ 07054 T: 973.560.4900 F: 973.560.4901

To: Eric Pitts - Ronnette Riley Architect

From: Craig Napolitano, Langan
Diego Martinez, Langan

Info: Vijay Patel - Langan

Date: July 13, 2023

Re: Limited Asbestos Sampling report
735 Anderson Hill Rd,
Purchase, NY 10577
Langan Project No.: 101058001

INTRODUCTION

As requested, Langan Engineering and Environmental Services, Inc. (Langan) completed a limited asbestos containing materials (ACM) assessment of built-up roofing materials at the referenced site. The assessment was limited to the roofs over the Library building and was conducted on June 19, 2023, by Langan's Diego Martinez, New York department of labor (NYDOL) accredited asbestos inspector. The roof probes were repaired by roofing contractor retained by others. The objective of this survey was to identify the presence/absence of ACM ahead of roofing materials replacement. In addition to roofing materials, sprayed on fireproofing and ceiling gypsum board/joint compound inside the building were also sampled for asbestos.

SURVEY METHODOLOGY

Langan conducted the ACM survey in general accordance with the applicable requirements of current EPA NESHAP Standard 40 CFR 61, Subpart M (Asbestos), NYSDOL-ICR56, and OSHA 29 CFR 1926.1101 asbestos survey and/or sampling protocols and sound judgement of the asbestos inspector(s).

Langan inventoried, classified, and collected representative bulk samples from suspect homogeneous areas (HAs) and submitted the samples for analysis. HAs are materials that appear similar in color, texture, and date of material application. The condition and approximate location of each identified suspect ACM were documented. Samples collected were properly packaged in individual plastic bags, sealed; catalogued and chain-of-custody documentation was completed. Analytical testing was performed in accordance with NYSELAP Methods 198.1 (friable materials), 198.1(NOB) and 198.4 (NOB-TEM), and 198.8 (surfacing materials containing vermiculite). Samples were analyzed by Atlas Environmental lab Corp.(Atlas) Atlas is a member of the American Industrial Hygiene Association (AIHA), National Voluntary Laboratory Accreditation Program (NVLAP). Sample analytical results are provided in Appendix A and sampling locations plan is depicted on Drawing ASL-1 included in Attachment B. Certifications and Laboratory Accreditations are provided in Attachment C.

MEMO

Limited Asbestos Sampling report
735 Anderson Hill Road
Purchase, New York 10577
Langan Project No.: 101058001
July 13, 2023 - Page 2

SUMMARY OF SURVEY AND FINDINGS

The following suspect asbestos containing materials were identified in the spaces surveyed:

Material	Location	Survey Results	Estimated Quantity of ACM		Notes/Comments
Felt associated with Foam Insulation	Middle Roof, Skylight Roof and Upper Roof	Non-ACM	---	---	Layer 1 Sample RM-1A-C
Mastic on Concrete Deck	Middle Roof, Skylight Roof and Upper Roof	Non-ACM	---	---	Layer 2 Sample RM-1A-C
Ridged insulation	Skylight Roof	Non-ACM	---	---	Sample RD1A, B
Flashing	Middle Roof, Skylight Roof and Upper Roof	Non-ACM	---	---	Sample RF 1A, B
Glue associated with rubber under metal coping	Skylight Roof	Non-ACM	---	---	Sample CSG-1A, B
Roof patch	Skylight Roof	Non-ACM	---	---	Sample RP-1A, B
Metal coping caulking	Skylight Roof	Non-ACM	---	---	Sample MCC-1A, B
Skylight caulking	Skylight Roof	Non-ACM	---	---	Sample SC-1A, B
Counter flashing caulking	Skylight Roof	Non-ACM	---	---	Sample CFC-1A, B
Spray on Fire proofing	Library under skylight	Non-ACM	---	---	Sample FP1-3
Gypsum board	Library under skylight	Non-ACM	---	---	Sample SR-1A, B
Joint compound	Library under skylight	Non-ACM	---	---	Sample JC-1A, B

Twenty-seven (27) layered bulk samples of suspect materials were collected during the survey. Analytical test results and chain of custody documentation are provided in Attachment A.

CONCLUSION

Asbestos containing materials were not identified in built-up roofing materials, fireproofing and gypsum board/joint compound, therefore, no abatement actions are necessary prior to replacement of the roofing materials and roof skylight.

LIMITATIONS AND EXCEPTIONS

This asbestos survey report is based on our observations of the building spaces surveyed. Langan's evaluation of ACM was conducted in accordance with the standard of care and current customary practice of the profession. Although, we do not expect presence of concealed ACM, demolition activities may reveal hidden materials that were not accessible during the asbestos survey. Any suspect building material that is not listed in this report must be assumed to be ACM and treated as such unless otherwise confirmed by laboratory testing. If any concealed suspect ACM is uncovered during the planned renovations, then those activities that will impact the suspect ACM must be discontinued until the suspect materials is sampled by an asbestos consultant and tested by an accredited laboratory for the presence of asbestos.

Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of Langan's site visit, and those reasonably foreseeable. They cannot

MEMO

Limited Asbestos Sampling report
735 Anderson Hill Road
Purchase, New York 10577
Langan Project No.: 101058001
July 13, 2023 - Page 3

necessarily apply to conditions and features of which Langan is unaware and has not had the opportunity to evaluate.

STATEMENT OF QUALIFICATIONS AND SIGNATURES

The information contained in this report is based on visual observations of the building and laboratory analytical data of the samples collected during the site visit(s). The survey was performed by Qualified Environmental Professional Mr. Diego Martinez. This individual has specific qualifications based on training, and/or experience to assess a property of the nature, history, and setting of the Subject Property. Certifications of the Environmental Professionals who performed the Asbestos Survey is provided in Attachment C.



Diego Martinez
NYS DOL Asbestos Inspector
Cert# 18-50252

ATTACHMENTS:

Attachment A	Analytical Test Results and Chain of Custody Documentation
Attachment B	ASL-1 - Asbestos Sampling Locations.
Attachment C	Certifications and Accreditations

NJ Certificate of Authorization No. 24GA27996400

\\Langan.com\data\PAR\data\0\101058001\Project Data_Discipline\Hazmat\ROOF survey\2023-07-13 - Limited Asbestos Testing Report - Library Building.docx

ATTACHMENT A

ANALYTICAL TEST RESULTS AND CHAIN OF CUSTODY DOCUMENTATION



Bulk Asbestos Report by PLM-TEM

Client: Langan
Collected by: Client
Project Name/No.: Suny Purchase College Library / 101058001
Project Address: 735 Anderson Hill RD, Purchase, NY 10577
Work Area:

Lab ID: BK0623319
Date Received: 6/21/2023
PLM Date Analyzed: 6/22/2023
TEM Date Analyzed: 6/23/2023
Report Date: 6/26/2023

Client ID#	Lab ID#	Description/ Location	Analyst Description	ORG %	All %	ASI %	Vermiculite	PLM			TEM	Method By ELAP		
								Fibrous%	Non Fibrous%	Asbestos% &Type	Asbestos% &Type	PLM 198.1	PLM NOB 198.6	TEM 198.4
RM-1-A	BK0623319-1	L1: Felt associated with foam insulation - Middle Roof	Black, Homogeneous, Non-Fibrous	90.7	4.1	5.2	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
RM-1-A	BK0623319-2	L2: Mastic on Concrete Deck - Middle roof	Black, Homogeneous, Non-Fibrous	86.5	9.4	4.2	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
RM-1-B	BK0623319-3	L1: Felt associated with foam insulation - Middle Roof	Black, Homogeneous, Non-Fibrous	90.2	5.3	4.5	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
RM-1-B	BK0623319-4	L2: Mastic on Concrete Deck - Middle roof	Black, Homogeneous, Non-Fibrous	96.9	1.7	1.4	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
RM-1-C	BK0623319-5	L1: Felt associated with foam insulation: Upper roof	Black, Homogeneous, Non-Fibrous	63.5	2.2	34.2	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
RM-1-C	BK0623319-6	L2: Mastic on concrete deck Upper roof	Black, Homogeneous, Non-Fibrous	64.4	3.5	32.1	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
RD-1-A	BK0623319-7	Ridged insulation: Skylight Roof	Tan, Homogeneous, Friable	Not Applicable			Not Present	60%CELL	40%	NAD		X		
RD-1-B	BK0623319-8	Ridged insulation: Skylight Roof	Tan, Homogeneous, Friable	Not Applicable			Not Present	60%CELL	40%	NAD		X		
RF-1-A	BK0623319-9	Roof Flashing - Middle Roof	Black, Homogeneous, Non-Fibrous	17.7	48.4	33.9	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
RF-1-B	BK0623319-10	Roof Flashing - Middle Roof	Black, Homogeneous, Non-Fibrous	29.7	10.6	59.7	Not Present	0%	100%	NAD Inconclusive	NAD		X	X



Bulk Asbestos Report by PLM-TEM

Client: Langan
Collected by: Client
Project Name/No.: Suny Purchase College Library / 101058001
Project Address: 735 Anderson Hill RD, Purchase, NY 10577
Work Area:

Lab ID: BK0623319
Date Received: 6/21/2023
PLM Date Analyzed: 6/22/2023
TEM Date Analyzed: 6/23/2023
Report Date: 6/26/2023

Client ID#	Lab ID#	Description/ Location	Analyst Description	ORG %	All %	ASI %	Vermiculite	PLM			TEM	Method By ELAP		
								Fibrous%	Non Fibrous%	Asbestos% &Type	Asbestos% &Type	PLM 198.1	PLM NOB 198.6	TEM 198.4
CSG-1-A	BK0623319-11	Glue associated with Rubber Under Metal coping - Skylight Roof	Black, Homogeneous, Non-Fibrous	60.7	20.8	18.5	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
CSG-1-B	BK0623319-12	Glue associated with Rubber Under Metal coping - Skylight Roof	Black, Homogeneous, Non-Fibrous	16.9	34.3	48.8	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
RP-1-A	BK0623319-13	Roof patch - Skylight Roof	Black, Homogeneous, Non-Fibrous	85.4	11.3	3.4	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
RP-1-B	BK0623319-14	Roof patch - Skylight Roof	Black, Homogeneous, Non-Fibrous	30.7	10.1	59.2	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
MCC-1-A	BK0623319-15	Metal coping Caulking - Skylight Roof	Black, Homogeneous, Non-Fibrous	73.9	4.4	21.7	Not Present	0%	100%	NAD Inconclusive	Trace CHRY		X	X
MCC-1-B	BK0623319-16	Metal coping Caulking - Skylight Roof	Black, Homogeneous, Non-Fibrous	72.4	7.3	20.3	Not Present	0%	100%	NAD Inconclusive	Trace CHRY		X	X
SC-1-A	BK0623319-17	Skylight Caulking - Skylight Roof	Grey, Homogeneous, Non-Fibrous	24.0	42.7	33.3	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
SC-1-B	BK0623319-18	Skylight Caulking - Skylight Roof	Grey, Homogeneous, Non-Fibrous	24.7	64.9	10.4	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
CFC-1-A	BK0623319-19	Counter Flashing Caulking - Skylight Roof	Grey, Homogeneous, Non-Fibrous	73.7	5.3	21.1	Not Present	0%	100%	NAD Inconclusive	NAD		X	X
CFC-1-B	BK0623319-20	Counter Flashing Caulking - Skylight Roof	Grey, Homogeneous, Non-Fibrous	73.8	2.0	24.3	Not Present	0%	100%	NAD Inconclusive	NAD		X	X



Bulk Asbestos Report by PLM-TEM

Atlas Environmental Lab, Corp.
255 West 36th Street, Suite# 1503
New York, NY 10018
Phone:(212) 563-0400 Fax:(212) 563-0401
www.atlasenvironmentallab.com

Client: Langan
Collected by: Client
Project Name/No.: Suny Purchase College Library / 101058001
Project Address: 735 Anderson Hill RD, Purchase, NY 10577
Work Area:

Lab ID: BK0623319
Date Received: 6/21/2023
PLM Date Analyzed: 6/22/2023
TEM Date Analyzed: 6/23/2023
Report Date: 6/26/2023

Client ID#	Lab ID#	Description/ Location	Analyst Description	ORG %	All %	ASI %	Vermiculite	PLM			TEM	Method By ELAP		
								Fibrous%	Non Fibrous%	Asbestos% &Type	Asbestos% &Type	PLM 198.1	PLM NOB 198.6	TEM 198.4
FP-1	BK0623319-21	Spray on fire proofing - Library Under Skylight	Tan, Homogeneous, Friable	Not Applicable			Present	Must Be Analyzed By Method 198.8				X		
FP-2	BK0623319-22	Spray on fire proofing - Library Under Skylight	Tan, Homogeneous, Friable	Not Applicable			Present	Must Be Analyzed By Method 198.8				X		
FP-3	BK0623319-23	Spray on fire proofing - Library Under Skylight	Tan, Homogeneous, Friable	Not Applicable			Present	Must Be Analyzed By Method 198.8				X		
SR-1-A	BK0623319-24	Gypsum Board - Library Under Skylight	Grey/Brown, Homogeneous, Friable	Not Applicable			Not Present	5%CELL 5%FBGL	90%	NAD		X		
SR-1-B	BK0623319-25	Gypsum Board - Library Under Skylight	Grey/Brown, Homogeneous, Friable	Not Applicable			Not Present	5%CELL 5%FBGL	90%	NAD		X		
JC-1-A	BK0623319-26	Joint Compound - Library Under Skylight	White, Homogeneous, Friable	Not Applicable			Not Present	0%	100%	NAD		X		
JC-1-B	BK0623319-27	Joint Compound - Library Under Skylight	White, Homogeneous, Friable	Not Applicable			Not Present	0%	100%	NAD		X		

*****Sprayed on Fireproofing & Surfacing Material containing any Vermiculite (SOF-V) (SM-V) must be analyzed by Item 198.8"**

Quantitative Analysis (Semi/Full):Bulk Asbestos Analysis-PLM by EPA 600/M4-82-020 per 40 CFR or ELAP198.1 (friable) and 198.6 (NOB) samples for New York.

NAD=no asbestos detected, NA/PS=Not Analyzed/Positive Stop, Trace=<1%,FBGL=Fiberglass, CELL=Cellulose,CHRY=Chrysotile,Amo=Amosite,CRO=Crocidolite,ANTH=Anthophyllite, TRE=Tremolite, ACT=Actinolite, NA=not applicable.

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.

All samples were prepared and analyzed in accordance with the EPA "TEM Method for Identifying and Quantifying Asbestos in Non-Fibrous Organically Bound Bulk Samples" ELAP 198.4".

ORG%=Ashed Organic%, All= Acid Insoluble Inorganic%, ASI= Acid Soluble Inorganic%

This "Summary of Analytical Results "shall not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, ELAP or any agency of the U.S Government. The results relate only to the items tested. This report may not be reproduced, except in full, without the written approval of AEL. Atlas Environmental lab did not collect the analyzed samples and thus accepts no liability with regard to their collection and/or maintenance. AEL relies on client's data. The liability of Atlas Environmental Lab corp with respect to the services charged, shall in no event exceed the amount of the invoice.

NYS-ELAP#11999, NVLAP Lab Code: 500092-0, NJ ID: NY034 "ELCP on NJ won't apply to TEM", CT Reg. ID: PH-0154

PLM Analyst: EM

TEM Analyst: VR

Approved by:

LANGAN

300 Kimball Drive
 Parsippany, NJ 07054
 Phone: 973-560-4900
 Fax: 973-560-4901

BK0623319

CHAIN OF CUSTODY RECORD / ANALYSIS REQUEST

Project Name: Suny Purchase College library				Analysis Requested for Asbestos			Analysis Requested for Lead		Analysis Requested for PCB	Results		
Address: 735 Anderson Hill RD		Auth. By: Vijay Patel		PLM	PLM-NOB	TEM	AAS	TCLP	EPA Method 8082			
Purchase NY 10577		973.560.4983										
Langan Job No.: 101058001		Sampling Date: 6/19/23										
Sampled By/License #: DIEGO MARTINEZ NYS 18-50252												
Sample #	Sample ID	Description of Sample	Sample Location									
1	RM-1-A	L1: Felt associated with foam insulation	Middle roof		X	X						
2	RM-1-A	L2: Mastic on concrete deck	Middle roof		X	X						
3	RM-1-B	L1: Felt associated with foam insulation	Skylight roof		X	X						
4	RM-1-B	L2: Mastic on concrete deck	Skylight roof		X	X						
5	RM-1-C	L1: Felt associated with foam insulation	Upper roof		X	X						
6	RM-1-C	L2: Mastic on concrete deck	Upper roof		X	X						
7	RD-1-A	Ridged insulation	Skylight roof		X	X						
8	RD-1-B	Ridged insulation	Skylight roof		X	X						
9	RF-1-A	Roof flashing	Middle roof		X	X						
10	RF-1-B	Roof flashing	Middle roof		X	X						
Total No. of Samples: 10				Turnaround Request:			RUSH	12 hours	24 hours	48 hours	72 hours	5 days
Laboratory Instructions: Stop analysis @ 1st positive (>1% by weight) for each homogenous sample group. Please e-mail results to cnapolitano@langan.com, dmartinez@langan.com and vpatel@langan.com. Please analyze all plaster samples. Do not stop analysis @ 1st positive (>1% by weight).												
Relinquished By: DIEGO MARTINEZ		Date: 6/20/23		Time: FEDEX		Received by: Liv Landry Lin Jones 9:50 am 6/21/23		Date: 6/22/23 10:15		Time:		
Company: LANGAN				Company:								

Laboratory Name:

LANGAN

300 Kimball Drive
 Parsippany, NJ 07054
 Phone: 973-560-4900
 Fax: 973-560-4901

BK0623319

CHAIN OF CUSTODY RECORD / ANALYSIS REQUEST

Project Name: Suny Purchase College library				Analysis Requested for Asbestos			Analysis Requested for Lead		Analysis Requested for PCB	Results
Address: 735 Anderson Hill RD Purchase NY 10577		Auth. By: Vijay Patel		PLM	PLM-NOB	TEM	AAS	TCLP	EPA Method 8082	
Longan Job No.: 101058001		Phone No: 973.560.4983								
Sampled By/License #: DIEGO MARTINEZ NYS 18-50252		Sampling Date: 6/19/23								
Sample #	Sample ID	Description of Sample	Sample Location							
11	CSG-1-A	Glue associated with rubber under metal coping	Skylight roof		X	X				
12	CSG-1-B	Glue associated with rubber under metal coping	Skylight roof		X	X				
13	RP-1-A	Roof patch	Skylight roof		X	X				
14	RP-1-B	Roof patch	Skylight roof		X	X				
15	MCC-1-A	Metal coping caulking	Skylight roof		X	X				
16	MCC-1-B	Metal coping caulking	Skylight roof		X	X				
17	SC-1-A	Skylight caulking	Skylight roof		X	X				
18	SC-1-B	Skylight caulking	Skylight roof		X	X				
19	CFC-1-A	Counter flashing caulking	Skylight roof		X	X				
20	CFC-1-B	Counter flashing caulking	Skylight roof		X	X				

RUSH	12 hours	24 hours	48 hours	72 hours	5 days
					X

Total No. of Samples: 10 Turnaround Request:

Laboratory Instructions: Stop analysis @ 1st positive (>1% by weight) for each homogenous sample group. Please e-mail results to cnapolitano@langan.com, dmartinez@langan.com and vpatel@langan.com. Please analyze all plaster samples. Do not stop analysis @ 1st positive (>1% by weight).

Relinquished By: DIEGO MARTINEZ 	Date: 6/20/23	Time:	Received by: L. V. Landry Date: 6/21/23 Time: 9:50 AM	Date: 6/21/23 Time: 10:15
Company: LANGAN	Company:			

Laboratory Name:

LANGAN

300 Kimball Drive
 Parsippany, NJ 07054
 Phone: 973-560-4900
 Fax: 973-560-4901

BK0623319

CHAIN OF CUSTODY RECORD / ANALYSIS REQUEST

Project Name: Suny Purchase College library				Analysis Requested for Asbestos			Analysis Requested for Lead		Analysis Requested for PCB	Results
Address: 735 Anderson Hill RD Purchase NY 10577		Auth. By: Vijay Patel		PLM	PLM-NOB	TEM	AAS	TCLP	EPA Method 8082	
Longan Job No.: 101058001		Phone No: 973.560.4983								
Sampled By/License #: DIEGO MARTINEZ NYS 18-50252		Sampling Date: 6/19/23								
DIEGO MARTINEZ NYS 18-50252										
Sample #	Sample ID	Description of Sample	Sample Location							
21	FP-1	Spray on fire proofing on beams	Library under skylight	X						
22	FP-2	Spray on fire proofing on beams	Library under skylight	X						
23	FP-3	Spray on fire proofing on beams	Library under skylight	X						
24	SR-1-A	Gypsum board	Library under skylight	X						
25	SR-1-B	Gypsum board	Library under skylight	X						
26	JC-1-A	Joint compound	Library under skylight	X						
27	JC-1-B	Joint compound	Library under skylight	X						
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--										
--										

Total No. of Samples:	7	Turnaround Request:	RUSH	12 hours	24 hours	48 hours	72 hours	5 days
								X

Laboratory Instructions: Stop analysis @ 1st positive (>1% by weight) for each homogenous sample group. Please e-mail results to cnapolitano@langan.com, dmartinez@langan.com and vpatel@langan.com. Please analyze all plaster samples. Do not stop analysis @ 1st positive (>1% by weight).

Relinquished By: DIEGO MARTINEZ 	Date: 6/20/23	Time:	Received by: L.V. Landry Lin Landry 6/21/23 9:50am	Date: 6/21/23 10:15	Time:
Company: LANGAN			Company:		



Atlas Environmental Lab, Corp.
 255 West 36th Street, Suite# 1503
 New York, NY 10018
 Phone:(212) 563-0400 Fax:(212) 563-0401
 www.atlasenvironmentallab.com

Analysis of Asbestos in SOF/SM-V Report

Client: LANGAN
Collected by: Client
Project Name: Suny Purchase College Library / 101058001
Project Address: 735 Anderson Hill Rd, Purchase, NY 10577
Work Area

Lab ID: VM0623022
Date Collected: 6/19/2023
Date Received: 6/26/2023
Date Analyzed: 6/30/2023
Report Date: 7/1/2023

Client ID#	Lab ID#	Location/ Description	Analyst Description	Vermiculite	Non Fibrous Material%	Fibrous Non Asbestos%	Chrysotile%	Amphibole %	Total Asbestos Content%
FP-1-2-3	VM0623022-1	Spray on Fire Proofing on Beams	Tan, Homogeneous, Friable	Present	100%	0%	No Chrysotile Detected	No Amphibole Detected	No Asbestos Detected

MG

***Sprayed on Fireproofing containing any Vermiculite (SOF-V) analyzed by NYS ELAP Item 198.8"

All detail data including weight calculation and analysis are attached.

The results relate only to the items calibrated or tested. This report may not be reproduced, except in full, without the written approval of AEL corp.
 This report may not be used to claim product endorsement by NVLAP, ELAP or any other agency of the U.S Government.

NYS-ELAP#11999,

Analyzed by: MN

Approved by:



Determination of Asbestos in Spray on Fireproofing Containing Vermiculite by ELAP (198.8)

AEL Sample ID #: VM0623022-1

Stereobinocular Microscopy:

Color: Tan Homogeneity: Good

By: MN

Texture: Friable Probable Fibers:

INITIAL WEIGHTS		Unit(gm)	2nd weight	*%weight difference	Non-Asbestos Fiber		Optical Property		Visual %	Calc%	
Weight of Crucible	21.5823										
Weight of Crucible + Sub-Sample	24.6413										
Weight of Sub-Sample	3.059										
ASHING											
Weight of Crucible + Ash	23.9922				Chrysotile Identification Optical Properties						
Weight of Ash	2.4099				Morphology	RI		Sign of Elongation	Pleochroism	Birefringence	Extinction
Weight Loss During Ashing	0.6491			τ							
Weight Percent Organic and Water	21.2194										
ACID TREATMENT/FLOTATION					Amphibole Identification Optical Properties						
Weight of Dish for Floats	7.0924				Morphology	RI		Sign of Elongation	Pleochroism	Birefringence	Extinction
Weight of Dish + Floats	7.093	7.093	0	τ							
Weight of Floats	0.0006										
Weight Percent Floats	0.0196										
Weight of Dish + Filter for Residue	6.9138										
Weight of Dish + Filter + Residue	7.9231	7.9231	0								
Weight of Residue	1.0093										
Weight Loss During Acid Treatment	1.4										
Weight Percent Acid-Soluble Materials	45.7666										
Weight Percent Residue	32.9944										
PLM EXAMINATION OF RESIDUE					Chrysotile Point Counts (Chrysotile/Other)						
Point Count: Number of Occupied Points	400				Slide 1:	0	50	Slide 5:	0	50	
Number of Chrysotile Points	0				Slide 2:	0	50	Slide 6:	0	50	
PERCENT CHRYSOTILE IN SAMPLE	0.0000				Slide 3:	0	50	Slide 7:	0	50	
					Slide 4:	0	50	Slide 8:	0	50	
HEAVY LIQUID CENTRIFUGATION					Amphibole Asbestos Point Counts						
Weight of Dish + Filter + Balance of	7.8178				Slide 1:	0	50	Slide 5:	0	50	
Weight of Balance of Residue	0.904				Slide 2:	0	50	Slide 6:	0	50	
Weight of Dish + Filter for Centrifugate	6.8415				Slide 3:	0	50	Slide 7:	0	50	
Weight of Dish + Filter +Centrifugate	6.9325	6.9325	0		Slide 4:	0	50	Slide 8:	0	50	
Weight of Centrifugate	0.091										
Weight Percent Centrifugate	2.97										
PLM EXAMINATION OF CENTRIFUGATE (AMPHIBOLE)											
Point Count: Number of Occupied Points	400										
Number of Amphibole Asbestos Points	0										
PERCENT AMPHIBOLE ASBESTOS IN SAMPLE	0.0000										
PERCENT TOTAL ASBESTOS IN	0.0000										

*Weight difference must be < 3%

	Analyst	Date
Gravimetric prep	AF	6/28/2023
Chrysotile Analysis	FC	6/28/2023
Centrifugation	AF	6/29/2023
Amphibole Analysis	MN	6/30/2023

LANGAN

300 Kimball Drive
 Parsippany, NJ 07054
 Phone: 973-560-4900
 Fax: 973-560-4901

CHAIN OF CUSTODY RECORD / ANALYSIS REQUEST

Page 3 of 3

~~BK0623317~~

VM0623022 Rec'd by Melissa Fong 6/20/23 10:00 am.

Project Name:		Sunny Purchase College library		Analysis Requested for Asbestos			Analysis Requested for Lead		Analysis Requested for PCB	Results
Address:		735 Anderson Hill RD	Auth. By: Vijay Patel	PLM	PLM-NOB	TEM	AAS	TCLP	EPA Method 8082	
Longan Job No.:		Purchase NY 10577	Phone No: 973.560.4983							
Sampled By/License #:		101056001	Sampling Date: 6/18/23							
Sample #	Sample ID	Description of Sample	Sample Location							
21	FP-1	Spray on fire proofing on beams	Library under skylight	X						
22	FP-2	Spray on fire proofing on beams	Library under skylight	X						
23	FP-3	Spray on fire proofing on beams	Library under skylight	X						
24	SR-1-A	Gypsum board	Library under skylight	X						
25	SR-1-B	Gypsum board	Library under skylight	X						
26	JC-1-A	Joint compound	Library under skylight	X						
27	JC-1-B	Joint compound	Library under skylight	X						
--										
--										
--										

Total No. of Samples:

7

Turnaround Request:

RUSH	12 hours	24 hours	48 hours	72 hours	5 days
					X

Laboratory Instructions:

Stop analysis @ 1st positive (>1% by weight) for each homogenous sample group. Please e-mail results to cnapolitano@langan.com, dmartinez@langan.com and vpatel@langan.com.
 Please analyze all plaster samples. Do not stop analysis @ 1st positive (>1% by weight).

Relinquished By:

DIEGO MARTINEZ

Date:

6/20/23

Time:

 Received by: L.V. Landry
 Date: 6/20/23
 Time: 9:50am

Date:

9:15 am
6/20/23

Time:

10:15

Company: LANGAN

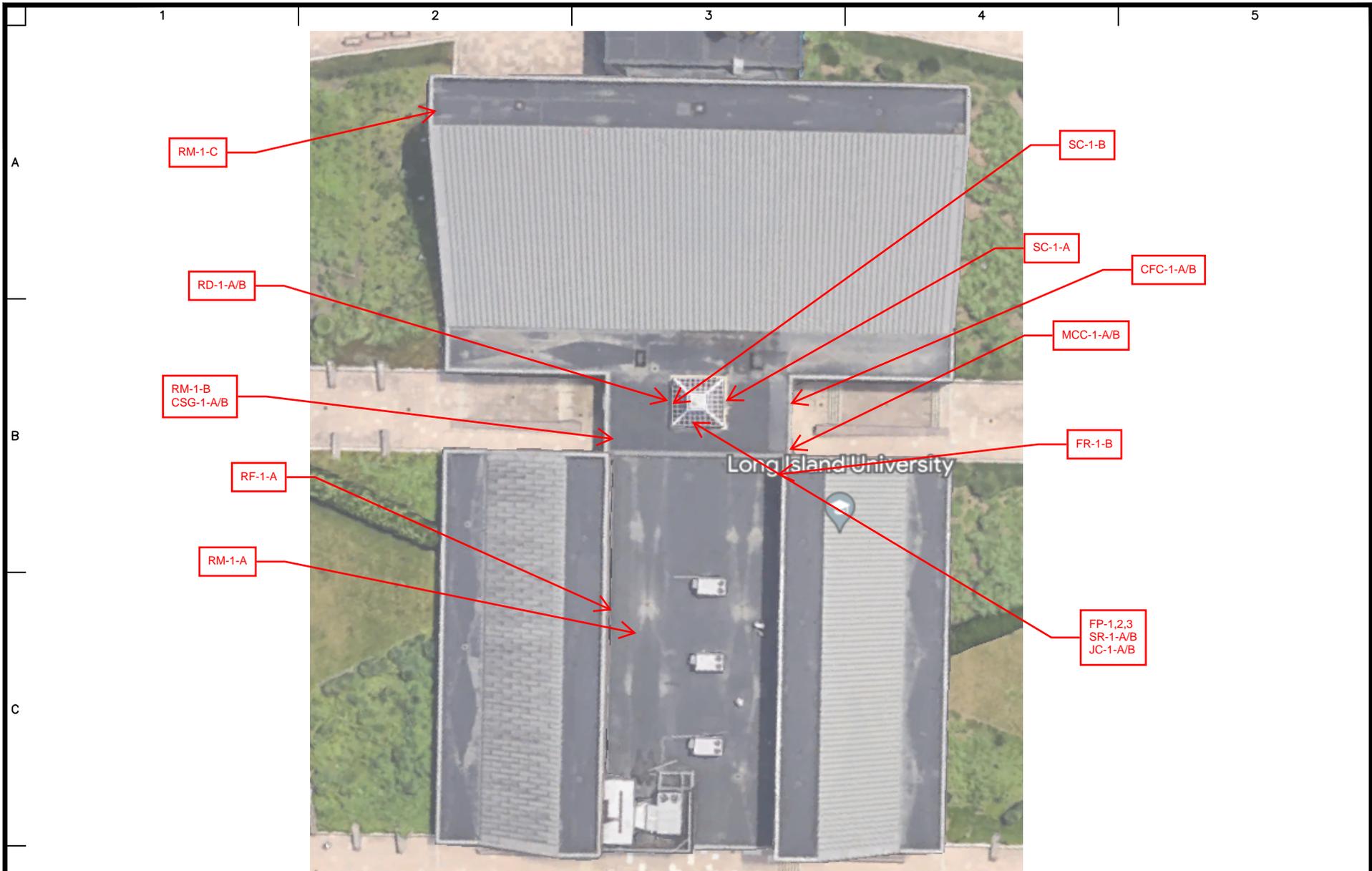
Company:

Laboratory Name:

MEMO

Limited Asbestos Sampling report
735 Anderson Hill Road
Purchase, New York 10577
Langan Project No.: 101058001
July 13, 2023 - Page 5

ATTACHMENT B DRAWINGS ASL-1



GENERAL NOTES:

A. THIS PLAN IS PROVIDED TO SHOW APPROXIMATE SAMPLING LOCATIONS. THE ACTUAL LAYOUT OF THE BUILDING AND BUILDING EQUIPMENT MAY BE SLIGHTLY DIFFERENT THAN SHOWN.

LANGAN

Langan Engineering and Environmental Services, Inc.
 300 Kimball Drive
 Parsippany, NJ 07054
 T: 973.560.4900 F: 973.560.4901 www.langan.com
 NJ Certificate of Authorization No.24GA27996400

Project

Sunny purchase library roof

NEW YORK

NEW YORK

Drawing Title

ASBESTOS SAMPLING LOCATIONS

Project No. 101058001

Date 7/10/23

Drawn By DM

Checked By VP

Drawing No.

ASL-01

Sheet 1 of 1

ATTACHMENT C

CERTIFICATIONS AND LABORATORY ACCREDITATIONS

WE ARE YOUR DOL



**Department
of Labor**

DIVISION OF SAFETY & HEALTH LICENSE AND CERTIFICATE UNIT, STATE OFFICE CAMPUS, BLDG. 12, ALBANY, NY 12226

ASBESTOS HANDLING LICENSE

Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
300 Kimball Drive, 4th Floor, Parsippany, NJ, 07054

License Number: 70336

License Class: RESTRICTED

Date of Issue: 02/17/2023

Expiration Date: 03/31/2024

Duly Authorized Representative: Vijay Patel

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.

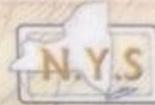
This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

A handwritten signature in black ink, appearing to read "A. Phillips".

Amy Phillips, Director
For the Commissioner of Labor

EXCELSIOR

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE



DIEGO MARTINEZ

CLASS(EXPIRES)

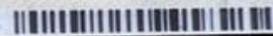
C ATEC(05/24) D INSP(05/24)

H PM (05/24)

CERT# 18-50252



MUST BE CARRIED ON ASBESTOS PROJECTS



01213 006776371 40

EYES BRO

HAIR BRO

HGT 5' 07"

IF FOUND RETURN TO:

NYS DOL - L&C UNIT

ROOM 161A BUILDING 12

STATE OFFICE CAMPUS

ALBANY NY 12240

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER



Expires 12:01 AM April 01, 2024
Issued April 01, 2022
Revised March 30, 2023

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

*MS. JACKIE DARVISH
ATLAS ENVIRONMENTAL LABS CORP
255 W 36TH STREET SUITE 1503
NEW YORK, NY 10018*

NY Lab Id No: 11999

*is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:*

Miscellaneous

Asbestos in Friable Material	Item 198.1 of Manual EPA 600/M4/82/020
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)
Asbestos in Non-Friable Material-TEM	Item 198.4 of Manual
Asbestos-Vermiculite-Containing Mate	Item 198.8 of Manual
Lead in Dust Wipes	EPA 7000B
Lead in Paint	EPA 7000B

Sample Preparation Methods

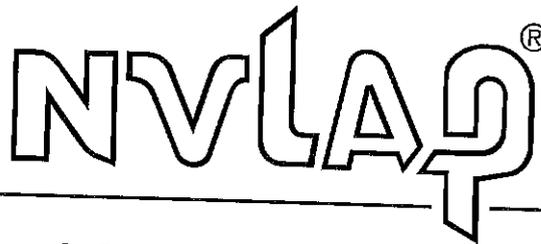
EPA 3050B



Serial No.: 66642

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to elap@health.ny.gov.

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500092-0

Atlas Environmental Lab (Asbestos in Bulk)
New York, NY

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

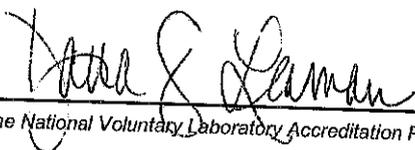
Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2022-10-01 through 2023-09-30

Effective Dates




For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Atlas Environmental Lab (Asbestos in Bulk)

255 W 36th Street Suite #1503

New York, NY 10018

Ms. Jackie Darvish

Phone: 212-563-0400 Fax: 212-563-0401

Email: jdarvish@atlasenvironmentallab.com

<http://www.atlasenvironmentallab.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 500092-0

Bulk Asbestos Analysis

Code

Description

18/A01

EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples

18/A03

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

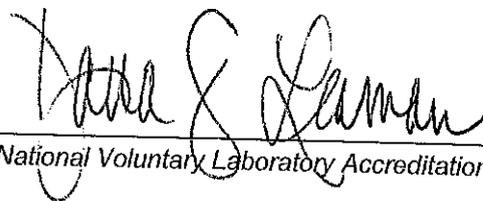
Airborne Asbestos Analysis

Code

Description

18/A02

U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program

SECTION 024119 SELECTIVE DEMOLITION AND ALTERATION WORK

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the selective demolition and alteration work as shown on the drawings and/or specified herein, including but not limited to the following:
 - 1. Alterations, selective demolition and removals as noted on drawings and as required to accommodate new construction.
 - 2. Removal of debris.
 - 3. Protection of existing building and spaces to remain, and shoring of the structure as required for structural integrity and personal safety.
 - 4. Alterations, selective demolition and removals of exterior facade where noted.
 - 5. Patching and refinishing of existing surfaces damaged as a result of this work.
 - 6. Protection.

1.3 QUALITY ASSURANCE

- A. The Contractor shall comply with the requirements of all applicable Federal, State and local safety and health regulations regarding the demolition of structures including NFPA 241-Building Construction and Demolition Operations as referenced in the NYS Fire Code.
- B. The Contractor shall be responsible for any damage to any adjacent structures or buildings to remain.

1.4 RELATED SECTIONS

- A. Alteration and removal requirements for mechanical and electrical work - Mechanical and Electrical Sections.

1.5 SUBMITTALS

- A. Schedule of Demolition Operations: Submit demolition procedures and operational sequence for Architect's review prior to start of work. Submit a written request to Architect well in advance of executing any cutting or alteration which affects:
 - 1. The work of tying in or connecting to operational systems of the building, including electrical, mechanical and security systems.

2. The work of the Owner or any separate Contractor.
 3. The structural value or integrity of any element of the project or of adjacent structures.
 4. The integrity or effectiveness of weather-exposed and moisture-resistant elements or systems.
 5. The efficiency, operational life, maintenance, or safety of operational elements or systems.
- B. Notice of Differing Conditions: Submit a written notification if, during the work of demolition and cutting, conditions are discovered which significantly vary from those shown on the drawings. Do not commence work until approval of Architect.
- C. Shop Drawings: Submit the following prior to starting work:
1. Submit for Architect's information shop drawings indicating location and typical construction details of temporary dustproof and weatherproof partitions.

1.6 JOB CONDITIONS

- A. Condition of Structure
1. Information regarding existing construction or conditions is based on available record drawings which may or may not truly reflect existing conditions. Such information is included on the assumption that it may be of interest to the Contractor, but the Architect, Owner and their consultants do not assume responsibility for its accuracy or completeness.
 2. Notify the Architect if, during the course of demolition, conditions are discovered which significantly vary from those shown on the drawings. Do not proceed until authorized by Architect.

PART 2 PRODUCTS

Refer to Part 3 - Execution, for Product Requirements

PART 3 EXECUTION

3.1 PROTECTION

- A. Take full precautions to protect workmen, passersby or any other persons from falling debris and other hazards of demolition operations.
- B. Execute demolition work to insure protection of existing portions of building to remain against damages which might occur from falling debris or other cause. Do not interfere with use of adjacent occupied buildings and areas. Maintain free, safe passage to and from occupied adjacent buildings.
- C. Materials Placement: Do not load structure with weight that will endanger, overload or cause excessive deflection of the existing structure, or that will damage finished

SUNY PURCHASE LIBRARY ROOF RENOVATION
Purchase, New York

surfaces adjacent to and/or supported by the existing structure, except portions being removed.

- D. Construction Operations: Do not employ any construction operation, equipment or vehicles that will endanger, overload or cause excessive deflection of the existing structure, or that will damage finished surfaces adjacent to and/or supported by the existing structure, except portions being removed.
- E. Take precautions to guard against movement, settlement, damage, or collapse of any part of building, sidewalks, adjacent property or street passages; be liable for any such movement, settlement or collapse. If such damage does accidentally occur, Contractor shall repair promptly at no cost to Owner.
- F. Provide the necessary safeguards to prevent accidents, to avoid all necessary hazards and protect the public, the work and property at all times, including Saturdays, Sundays, and holidays.
- G. Be responsible for any and all damages which may arise or occur to any party whatsoever by reason of the neglect in providing proper lights, guards, barriers, or any other safeguards to prevent damage to property, life and limb.
- H. Make such explorations and probes as are necessary to ascertain any required protective measures before proceeding with demolition and removal. Give particular attention to shoring and bracing requirements so as to prevent any damage to existing construction.
 - 1. Provide interior and exterior shoring, bracing, or support to prevent movement or settlement or collapse of structures to be demolished and adjacent facilities to remain. The Contractor's Professional Engineer shall advise on bracing, shoring, underpinning, or other structural requirements. The Contractor shall bear all responsibility for prevention of movement or other structural fault.
 - 2. The Contractor shall restore, by repair or otherwise, the portions of structure or their contents altered by the Contractor in furtherance of his underpinning and support operations. Restoration shall be completed to the conditions which existed prior to the start of the work. Any damage caused by inadequate support shall also be restored by the Contractor at no cost to the Owner.
- I. Provide, erect and maintain catch platforms, lights, barriers, weather protection, warning signs, and other items as required for proper protection of the workmen engaged in demolition and alteration operations, occupants of the building, public and adjacent property. Any damage caused by the Contractor's operations shall be promptly repaired by the Contractor at no cost to the Owner.
- J. Provide and maintain temporary protection of the existing structure designated to remain where demolition, removal, and new work are being done, connections made, materials handled, or equipment moved.
- K. Take necessary precautions to prevent dust and dirt from rising. Protect unaltered portions of the existing building affected by the operations under this Section by dustproof partitions and other adequate means.

- L. Provide adequate fire protection in accordance with local Fire Department requirements.
- M. Do not close or obstruct walkways, passageways, or stairways. Do not store or place materials in passageways, stairs, or other means of egress. Conduct operations with minimum traffic interference.
- N. Be responsible for any damage to the existing structure or contents by reason of the insufficiency of protection provided.
- O. Erect temporary covered passageways at street level as required by authorities having jurisdiction.
- P. Promptly repair damages caused to adjacent facilities by demolition operations at no cost to the Owner.
- Q. Provide and maintain weather protection at exterior openings so as to fully protect the interior premises against damage from the elements until such openings are closed by new construction.

3.2 INSPECTION

- A. Verify that areas of demolition work are protected and temporary dustproof partitions have been installed.
- B. Verify that construction to be removed is not load bearing or has been properly braced, framed or supported.
- C. Inspect existing conditions of the project, including elements subject to damage or to movement during demolition and cutting.
- D. After uncovering work, inspect the conditions affecting the installation or performance of the work.
 - 1. Report differing or questionable conditions to the Architect in writing; do not proceed with the work until the Architect has provided further instructions.

3.3 PREPARATION

- A. Provide adequate temporary support as necessary to assure the structural value or integrity of the affected portion of the work
- B. Provide devices and methods to protect other portions of the project from damage.
- C. Pollution Controls
 - 1. Use water sprinkling, temporary enclosures, and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. Comply with governing regulations pertaining to environmental protection.
 - a. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

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Purchase, New York

2. Clean adjacent structures and improvements of dust, dirt and debris caused by demolition operations. Return adjacent areas to condition existing prior to the start of the work.
3. Provide drainage for temporary water use.

3.4 DEMOLITION AND CUTTING

A. Selectively demolish existing construction in conformance with the drawings and these specifications.

1. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surface to receive installation of work by others and patching of finish surfaces.
2. Do all cutting or removal so as to leave neat, true, plumb and square edges, at edges to remain. Use carborundum or diamond saw equipment for cutting masonry, concrete and stone work, where edges or surfaces are to remain.
3. Do not cut or remove construction which might weaken or impair the structural integrity or strength of the structural framing or support systems which are to remain.
4. Demolish and remove materials as shown on the drawings without damage to the remaining parts of the structure or mechanical/electrical/utility systems.
5. Remove materials so as to not impose excessive loads in supporting walls, floors or framing and so as not to damage remaining undemolished portions of the structure.
6. Where portions of structures are to be removed, remaining portions shall be protected from damage and prepared to fit new construction. Damage to portions of structures to remain shall be repaired.
7. Reinforcing steel in existing structures shall be left in place, cleaned and aligned to provide tie with new work.
8. Existing waterproofing systems and flashings shall be carefully exposed and protected to maintain workable conditions of fitting new work with existing construction.
9. Proceed with demolition in a systematic manner.
10. Demolish concrete and masonry in small sections.
11. Remove structural framing members and lower to ground by means of hoists, derricks, or other suitable methods.

B. Shoring

1. Design, provide, erect and maintain necessary temporary shoring, bracing, framing, or support where load bearing structural or supporting members are removed or weakened by cuts or openings or are subject to damage from

demolition operations, and otherwise as required for safety or to protect finish surfaces from damage.

2. Construction and adequacy of the shoring shall be the entire responsibility of the Contractor. Any damage caused by the inadequacy of the shoring or other support shall be the responsibility of the Contractor to remedy at no additional expense to the Owner.
3. Shoring and bracing shall remain until new structural framing and/or supports are installed. Coordinate operations fully with other trades.
4. Be ready at any time to promptly provide, add to, or strengthen temporary shoring, bracing, or support for existing work, in case existing construction begins to show signs of structural stress.

3.5 WORKMANSHIP STANDARDS FOR ALTERATION AND REMOVAL WORK

- A. Cut, remove, alter, temporarily remove and replace, or relocate existing work as required for performance of the work. Perform such work required with due care, including shoring and bracing.
- B. Coordinate patching involving the various trades whether or not specifically mentioned in the respective specification Sections.
- C. Materials or items demolished and not designated to become the property of the Owner or to be reinstalled shall become the property of the Contractor and shall be removed from the Owner's property.
- D. Execute the work in a careful and orderly manner, with the least possible disturbance to the public and to the occupants of the adjacent buildings.
- E. In general, demolish masonry in small sections. Where necessary to prevent collapse of any construction, install temporary shores, struts, or bracing.
- F. Where existing equipment and/or fixtures are indicated to be reused, repair such equipment and/or fixtures and refinish to put in perfect working order. Refinish as directed.
- G. Cut out embedded anchorage and attachment items as required to properly provide for patching and repair of the respective finishes.
- H. Confine cutting of existing roof areas designated to remain to the limits required for the proper installation of the new work. Cut and fold back existing roofing. Cut and remove insulation and related items. Provide temporary weathertight protection as required until new roofing and flashings are installed. Consult the Owner to ascertain if existing guarantee bonds are in force and execute the work so as not to invalidate such bonds.
- I. Where utilities are removed, relocated or abandoned, cap, valve, plug, or by-pass to make complete and working installation.
- J. Restore existing pipe and duct coverings damaged by work under this Contract to original undamaged condition.

SUNY PURCHASE LIBRARY ROOF RENOVATION

Purchase, New York

- K. Immediately restore to service and repair any damage caused by Contractor's workmen to existing pipe and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems which are not scheduled for discontinuance or abandonment.
- L. Upon completion of contract, deliver work complete. Damage that may be caused by Contractor or Contractor's workmen to existing structures designated to remain, grounds, and utilities shall be repaired by Contractor and left in as good condition as existed prior to damaging.
- M. Restore finish work of floors, walls, and ceilings remaining in place but damaged or defaced because of demolition or alteration work to condition equal that which existed at beginning of work under this Contract.
- N. Where alteration or removals expose damaged or unfinished surfaces or materials, refinish such surfaces or materials, or remove them and provide new or salvaged materials to make continuous surfaces uniform.
- O. Perform new work and restore and refinish existing work in conformance with applicable requirements of the specifications, except as follows:
 - 1. Materials for use in repair of existing surfaces, but not otherwise specified, shall conform to the highest standards of the trade involved, and be in accordance with approved industry standards, and shall be as required to match existing surfaces.
 - 2. Workmanship for repair of existing materials shall, unless otherwise specified, be equal to similar workmanship existing in or adjacent to the space where the work is being done.
 - 3. Installation of salvaged items where no similar items exist shall be done in accordance with the highest standards of the trade involved and in accordance with approved shop drawings.
- P. Materials or items designated to become the property of the Owner shall be as shown on the drawings. Remove such items with care and store them in a location at the site to be designated by the Owner.
- Q. Materials or items designated to be reinstalled shall be as shown on the drawings. Remove such items with care under the supervision of the trade responsible for reinstallation; protect and store until required. Replace materials or items damaged in their removal with similar new material.
- R. The existing building shall not be used as a work shop. Neither shall the furnishings or equipment in any room be used as work benches. Should any damage occur during the progress of the work to any furniture, fixtures, equipment, or appurtenances therein, such damage shall be repaired, replaced or made good by the Contractor without extra cost to the Owner.
- S. Finish new and adjacent existing surfaces as specified for new work. Clean existing surfaces of dirt, grease and loose paint before refinishing.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. Refer to General conditions section 01 74 19 - Construction Waste Management

3.7 CLEANING UP

- A. Refer to General conditions section 01 74 00 - Clean Up

END OF SECTION

SECTION 02 82 13- ASBESTOS ABATEMENT

Asbestos

The following shall apply to the abatement of asbestos being done under this contract:

- a. **Applicable Regulations:** All work to be done under this Contract shall be in compliance with Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York (cited as 12 NYCRR Part 56), as currently amended, and applicable federal and state regulations.
- b. **Presumed Asbestos-Containing Material:** During any work of this contract that disturbs existing material, all material that can be defined as “presumed asbestos-containing material” according to 29 CFR Part 1926 **and guidance documents published by New York State Department of Health’s (NYSDOH) Environmental Laboratory Approval Program (ELAP) and Bureau of Occupational Health (BOH), and the NYS Department of Labor (DOL)** shall be considered asbestos-containing materials unless asbestos test results bound at the end of this section indicated otherwise; or if the Contractor, at its own expense, tests the presumed asbestos-containing material and rebuts the presumption, as permitted by 29 CFR Part 1926.
- c. **Applicable Variance:** During the performance of the work, comply with the requirements of variance(s), if any, obtained by the Owner and/or consultant, which are bound after this section. The Contractor is responsible for the cost and the time required to obtain any additional variance(s) that they deem desirable in the performance of the work and feel may be consistent with the policies/ procedures as set forth in 12 NYCRR Part 56. **Prior to requesting any additional variance(s), submit a draft(s) of the request to the Consultant and the Fund for review and approval.** Copies of all additional variance(s) obtained by the Contractor shall be provided to the Consultant, Fund and the Campus prior to performing any work affected by the additional variance(s).
- d. **Owner Project Fact Sheet:** The Contractor shall complete and submit three copies of the Asbestos Material Fact Sheet (appended to this Section) to the Fund prior to the project startup. If the initial submission is not complete for a reason approved by the Fund, the complete Asbestos Material Fact Sheet shall be submitted prior to acceptance of the applicable work.
- e. **Air Monitoring:** The Owner shall be responsible for hiring and paying an independent third party firm to perform the requirements of air monitoring as called for in 12 NYCRR Part 56 and as permitted in Section 2.17 of the Agreement. The Owner’s air monitoring firm shall provide 24 hour turn around on tests, will work during the hours between 7 AM and 4 PM on Monday through Friday unless otherwise agreed to by the Owner, and may inspect the work for cleanliness prior to performing sampling. Cooperate with the Owner’s air monitoring firm in sequencing and scheduling the work in concert with the air monitor’s availability. Provide access, electrical power and lighting, cleaning, and other work required to facilitate successful air monitoring activities. Provide additional air monitoring,

at no expense to the Owner, as required to protect and monitor on site workers if required by applicable safety regulation or the contractor's safety plan.

- f. Disposal Procedures: It is the responsibility of the Contractor to determine and comply with the waste handling, transportation and disposal regulations in effect at the time the work is performed, as applicable to the work site(s) and proposed waste disposal facility/landfill(s). The asbestos contractor must comply fully with the latter regulations and all other applicable U.S. Department of Transportation, Environmental Protection Agency (EPA), and other Federal, State and local rules and regulations in effect at the time the work is performed. Submit three copies of all pertinent manifests to the Owner. Use a single source facility for disposal of all waste of similar type and category.

- g. Submittals: Prior to commencement of the work on this project, the Contractor must submit the following to the Owner:
 - 1) Copy of original insurance policy.
 - 2) Copy of Department of Labor notification.
 - 3) Copy of EPA notification.
 - 4) Abatement Plan Layout - Decon, Negative Air Lines, Variances.
 - 5) SUCF Asbestos Removal Fact Sheet.
 - 6) Product Information - Encapsulant, Mask, etc.
 - 7) Material Safety Data Sheets.
 - 8) Asbestos Handling License.
 - 9) Waste Transporter Permits.
 - 10) Dumping Receipt - Waste Manifest.
 - 11) Testing Lab - License, Certification.
 - 12) Employees - Workers Acknowledgement, Certification.
 - 13) Supervisor's Certification

- h. Special Requirements
 - 1) The drawings, schedules and specifications indicate the applicable scope of abatement work.
 - 2) The Contractor shall have at least one English-speaking supervisor on the job site at all times while the project is in progress.
 - 3) Prior to the commencement of work involving asbestos demolition, removal, and/or renovation, the Contractor must submit to the Owner the name of its on-site asbestos supervisor responsible for such work and the named supervisor's NYS certification documentation showing completion of an EPA approved training course for asbestos supervisors. The approved supervisor shall maintain such certification during the work and be on site at all times when abatement work is being performed.

- 4) If a waste shipment record has not been returned to the Owner within 45 days, a report must be filed by the Owner with the EPA describing the steps the Owner has taken to determine the status of the shipment. During the Owner's preparation of the latter report, the Contractor shall give its constant personal attention and assistance in determining the status and disposition of the shipment.

**STATE UNIVERSITY CONSTRUCTION FUND
ASBESTOS MATERIAL REMOVAL FACT SHEET**

SUCF PROJ NO. _____ PROJECT TITLE _____ DATE _____

SCOPE OF WORK: _____

ASBESTOS CONTRACTOR: Name/Address _____ _____ Phone No.: _____	PRIME CONTRACTOR: (If applicable) _____ _____ Phone No. _____
---	--

Contract Award Amount: _____	Asbestos Lic No. _____
Contract Completion Date: _____	Expiration Date: _____

ASBESTOS ABATEMENT PERSONNEL: (Attach Additional Sheets as Required)

	Name	Title/Function	Social Security No.	Certificate No.	Expir. Date
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____

ASBESTOS ABATEMENT WORK: (Attach Additional Sheets as Required)

	Bldg (1) Usage	Removal Location (Bldg/Room)	Mat'l (2) Removed.	Quantity (3)	Methods of Removal
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____

Date Removal Begins: _____ Date Removal Ends _____

Asbestos Carrier _____ Disposal Site _____

Phone No. _____ Phone No. _____

Hauler Permit No.(s): _____

NOTE: In addition to the above information, the contractor shall submit all required documentation as stipulated by the New York State Labor Law Article 30; Part 56, 12NYCRR, which includes a copy of the asbestos contractor license and all asbestos handling certificates, waste transporters permits, disposal receipt acknowledgement, and air test reports (prior, during, and after abatement)

**STATE UNIVERSITY CONSTRUCTION FUND
ASBESTOS MATERIAL REMOVAL FACT SHEET**

KEY

BUILDING USAGE

A	Administration	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 _____

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SECTION 042000 UNIT MASONRY

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the unit masonry work as shown on the drawings and/or specified herein, including but not necessarily limited to the following:
 1. Concrete block walls and partitions.
 2. Face brick.
 3. Metal joint reinforcing, anchors, ties, weeps, closures and related accessories for masonry.
 4. Control and expansion joints in masonry, filled with joint fillers.
 5. Thru-wall flashing.
 6. Mortar net.
 7. Chases, recesses, pockets and openings in masonry as required for installation of work by others.
 8. Building in of items furnished by others into masonry, including access doors, door frames, anchors, sleeves and inserts, and other similar items to be embedded in masonry.
 9. Grouting in of metal items built into masonry work.
 10. Protection, pointing and cleaning of masonry.

1.3 RELATED SECTIONS

- A. Metal flashing - Section 076200.

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B. Firestops and smoke seals - Section 078413.

C. Sealant - Section 079200.

1.4 SUBMITTALS

A. Submit Shop Drawings for the following:

1. Anchoring details.
2. Control and expansion joint locations and details.
3. Special brick shapes, including large scale shop drawings showing configuration and dimensions.
4. Flashing at typical lintels indicating relationship of flashing to lintel hangers.

B. Submit Samples for the following:

1. Each type of face brick in sufficient number and color (not less than 5) to show full range of color, texture and shade. Submit certification that brick meets ASTM standards specified herein.
 - a. Submit samples of all special shapes required showing color range and sizes.
2. Joint reinforcing, each type, width and proposed location (labeled).
3. Anchors, wedges and ties, each type, width and proposed location (labeled).
4. Joint filler, each type.
5. Flashing, including splice sample, 12" long.
6. Mortar color, 12" long cured sample.

C. Submit technical and installation information for the following:

1. Mortar materials, each material and mortar type.
2. Certification of mortar mix.
3. Flashing material, descriptive literature.
4. Concrete block, joint reinforcing, anchors, ties and joint filler; submit manufacturer's technical and descriptive literature.

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5. Block manufacturer shall submit certifications of compliance with ASTM C 90, C 331 and UL 618 prior to any job site delivery. Field sampling of concrete block may be tested by an Independent Testing Laboratory retained by the Owner according to the requirements of ASTM C 140.

D. Construction Procedures (Submit the following)

1. Procedures and materials for cleaning masonry work; including certification that cleaner will not adversely affect stone, gaskets, sealants, etc.

1.5 QUALITY ASSURANCE

A. Conform to the following non-cumulative tolerances (any masonry work not meeting these standards shall be re-built as directed by the Architect).

1. Variation from the plumb:

a. In lines and surfaces of columns, walls and arrises:

- | | | |
|-----|---------------------------------|------|
| 1). | In 10 feet | 1/8" |
| 2). | In any story of 25 feet maximum | 1/4" |
| 3). | In 40 feet or more | 1/4" |

b. For external corners, expansion joints and other conspicuous lines:

- | | | |
|-----|---------------------------------|------|
| 1). | In any story of 25 feet maximum | 1/4" |
| 2). | In 40 feet or more | 3/8" |

2. Variation from the level or the grades indicated on the drawings; for exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines:

- | | | |
|----|-------------------------------|------|
| a. | In any bay or 20 feet maximum | 1/4" |
| b. | In 40 feet or more | 1/4" |

3. Variation of the linear building lines from established position in plan related portion of columns and partitions:

- | | | |
|----|-------------------------------|------|
| a. | In any bay or 20 feet maximum | 1/4" |
| b. | In 40 feet or more | 1/2" |

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4. Variation in cross-sectional dimensions of columns and in thickness of walls:
 - a. Minus 1/8"
 - b. Plus 1/8"

5. Variation in dimensions of masonry openings:
 - a. Horizontal dimension -0" + 1/16"
 - b. Vertical dimension +0" - 1/16"

B. Factory Control

1. The Architect reserves the right to visit the brick manufacturer's facility and review pre-sorting so that all brick falls within a color range acceptable to the Architect.
2. 4' x 4' mock-ups shall be constructed at the factory using the face brick specified. This mock-up, after approval of the Architect, shall become the quality control panel for the selected brick.
3. Prior to any shipment of the face brick from the factory, the Architect reserves the right to inspect the brick for the thoroughness of the pre-sorting and to reject any brick which in his opinion do not fall within acceptable color range.

C. Work of this Section shall conform to the requirements of the following (unless otherwise superseded by prevailing Building Code):

1. ACI 530/ASCE 5/TMS 402 Building Code Requirements for Masonry Structures.
2. ACI 530-1/ASCE 6/TMS 602 Specifications for Masonry Structures.
3. Brick Industry Association (BIA) "Technical Notes on Brick Construction."

D. Pre-Construction Conference: Prior to installation of masonry and associated work, Contractor shall arrange a meeting with Masonry Subcontractor, installers of related work, and other entities concerned with masonry wall performance, including the Architect and Owner. Contractor shall record discussions and agreements and furnish copy to each participant. Provide at least seventy-two (72) hours' advance notice to

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participants prior to convening conference. Review methods and procedures related to masonry work, including, but not limited to, the following:

1. Review masonry requirements (drawings, specifications and other Contract Documents).
2. Review required submittals, both completed and yet to be completed.
3. Review and finalize construction schedule related to masonry work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
4. Review required inspection, testing, certifying and material usage accounting procedures.
5. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions.
6. Coordinate work with air/vapor barrier membrane and related flashing, review details to avoid conflicts.

1.6 PRODUCT HANDLING

- A. General: Deliver, store, handle and protect all materials from damage, moisture, dirt and intrusion of foreign matter. Store all masonry units and mortar materials on raised platforms and under ventilated and waterproof cover. Store packaged materials in manufacturer's unopened containers, marked with manufacturer's name and product brand name. Immediately reseal containers after partial use. Remove and replace damaged materials.
- B. Masonry Units: Pack, deliver and store to prevent breakage, cracking, chipping, spalling or other damage. Store, protect and ventilate units at project site.
- C. Aggregate: Store with provisions for good drainage.
- D. Reinforcement and Anchors: Store and protect so that when placed, joint reinforcement and anchors will be free of soil, dirt, ice, loose rust, scale, or other coatings which would destroy or reduce bond with mortar, and will not be disfigured or bent out of shape.

1.7 TESTING FOR EFFLORESCENCE

- A. Test selected face brick for efflorescence in accordance with ASTM C 67.
- B. If, at the end of the test period, the samples of brick or mortar show efflorescence, the materials represented shall be rejected and new materials shall be re-tested. This

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process shall be repeated until no efflorescence appears. Testing shall be done by an independent testing laboratory at the expense of the Contractor; submit test results in writing to the Architect.

1.8 JOB CONDITIONS

- A. In cold weather, when the outside temperature is below forty (40) degrees F., conform to the requirements of "Cold Weather Masonry Construction and Protection Recommendations" publication by Brick Industry Association (BIA). No anti-freeze admixtures are permitted.
1. In addition, conform to the following:
 - a. Masonry materials must be warmed as required.
 - b. Brickwork must be protected a minimum of 24 hours after installation so as to maintain enough heat for hydration of the cement in the mortar.
- B. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 100 deg. F. and above. In addition, conform to the following:
1. Masonry materials must be cool.
 2. Mortar must be used within 2 hours of initial mixing.
- C. Protection of Masonry: During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
1. Extend cover a minimum of 24" down both sides and hold cover securely in place.
 2. Where one wythe of multi-wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24" down face next to unconstructed wythe and hold cover in place.
- D. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

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1. Protect base of walls from rain-splashed mud and mortar splatter by coverings spread on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt on completed masonry.

PART 2 PRODUCTS

2.1 MATERIALS

A. Brick

1. Size: Standard Brick.
2. Facing Brick: ASTM C 216, Grade SW, Type FBX to match existing,
3. Where brick is fully concealed provide common brick conforming to ASTM C 62, Grade SW.
4. Provide all special molded shapes as indicated on the drawings.
5. For sills, caps and similar applications resulting in exposure of brick surfaces which otherwise would be concealed from view, provide uncured units with all exposed surfaces finished.

B. Joint Reinforcing for Masonry Walls

1. Non-Seismic Construction: For anchoring face brick to CMU back-up, provide welded "ladder" design, of 3/16" dia. gauge steel rods with adjustable 3/16" wire rectangular pintle anchors fastened to reinforcement 16" o.c. Provide special formed prefabricated pieces at corners and intersections of walls or partitions. Anchors to extend at least 2" into face of brick. Show anchor locations on approved shop drawings. Joint reinforcing shall be equal to Ladder Type 270 with "Lox All Adjustable Anchor" made by Hohmann & Barnard or equal manufactured noted below in Para. B.3.
 - a. Reinforcing assembly shall have hot dip galvanized steel finish conforming to ASTM A 153 with zinc coating of 1.5 oz. of zinc per sq. ft. after fabrication.

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2. Wire used in assemblies noted above shall be cold drawn steel wire conforming to ASTM A 82.
 3. Approved Joint Reinforcing Manufacturers
 - a. Hohmann & Barnard
 - b. Wire-Bond
 - c. Heckmann Building Products
 - d. National Wire Products Industries, Inc.
- C. Anchors and Ties
1. Dovetail Anchor Slots: Hot-dip galvanized steel, 16 gauge equal to No. 100 Dovetail Anchor Slot made by Heckmann Building Products, No. 305 anchor slot made by Hohmann & Barnard, or approved equal by other manufacturers in Para. B.3.
 2. Flexible Metal Ties for Dovetail Slots: Hot-dip galvanized, 16 gauge by 1" wide by Heckmann Building Products Inc., or approved equal manufacturer noted above in Para. B.3.
 - a. No. 106 Dovetail Corrugated Anchor.
 - b. No. 129 Dovetail Triangle Tie.
 3. Wire Mesh: Hot-dip galvanized sixteen (16) gage steel wire, square mesh, width intended for size of block by length to suit condition;, or approved equal by manufacturer noted above in Para. B.3.
 4. For anchoring CMU wall, at the exterior masonry cavity wall, to the underside of the concrete beam, provide dovetail slot as noted above and the following:
 - a. No. 121 galvanized steel dowel anchor and No. 421 tube as manufactured by Heckmann Building Products or approved by manufacturer noted above in Para. B.3. Galvanized to conform to ASTM A 153, Class B-2.
 - b. No. PTA-310 galvanized steel dowel anchor and No. NS-TA joint filler as manufactured by Hohmann & Barnard or approved equal by manufacturer noted above in Para. B.3. Galvanizing to conform to ASTM A 153, Class B-2.

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5. For anchoring masonry to structural steel, provide hot-dip galvanized steel, as listed, or approved equal by manufacturer noted above in Para. B.3:
 - a. Made by Heckmann Building Products. Galvanizing shall conform to ASTM A 153, with zinc coating of 1.5 oz. of zinc per sq. ft.
 - 1). No. 195 Column Anchors
 - 2). No. 197 Column Anchors
 - 3). No. 315 Weld-On Anchor Rods with No. 316 Triangle Ties
 - 4). No. 315-B Weld-On Anchor Straps with No. 316 Triangle Ties
 - b. Made by Hohmann & Barnard or approved equal. Galvanizing shall conform to ASTM A 153, with zinc coating of 1.5 oz. of zinc per sq. ft.
 - 1). No. 355 Column Anchors
 - 2). No. 356 Column Anchors
 - 3). No. 357 Beam Anchors
 - 4). No. 359 F anchor straps with VWT tie.
- D. Reinforcing Bars and Rods: ASTM A 615, Grade 60. See Drawings for size.
- E. Control and Expansion Joint Fillers
 1. Vertical Installation Within Concrete Masonry Wall: Extruded high grade neoprene rubber, cross shape, for use with concrete masonry sash units, which shall provide a force fit in the grooves of the sash block, and shall have 1/2" diameter tubular ends (compressed 25% when installed in 3/8" wide joint).
 - a. Provide the following sizes:
 - 1). 2-5/8" wide control joint fillers for 4" block walls.
 - 2). 4-5/8" wide for 6" block walls.
 - 3). 6-5/8" wide for 8", 10" and 12" block walls.
 - b. Provide backer rod and sealant joint over joint filler as per drawings and Section 079200 of these specifications.

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2. Isolation Joint Filler at Abutting Construction and at Intersecting CMU Walls: Compressible and resilient closed cell neoprene gasket with pressure sensitive adhesive backing, thickness 30% greater than thickness of joint. Recess joint filler and install backer rod and sealant as per drawings and Section 079200 of these specifications.
3. Within Face Brick: Provide filler rod and sealant installed by Section 079200. Filler depth shall be 2 times joint width.
4. Within Expansion Joint at Face Brick: Manufacturer's standard preformed, pre-compressed, open-cell polyurethane foam sealant impregnated with a water based, non-drying polymer modified acrylic water repellent. Provide "Seismic Colorseal" installed to twenty-five 25 percent compression.
 - a. Properties: Permanently elastic, mildew resistant, non-migratory, non-staining, and compatible with joint substrates and other joint sealants. Density: 8.4 to 9.1 lb./cu. ft..

2.2 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type 1, standard color, one source.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Aggregate: Clean, washed, buff colored sand, graded per ASTM C 144.
- D. Aggregate for Grout: ASTM C 404.
- E. Water: Clean, fresh and suitable for drinking.

2.3 MORTAR MIX

- A. Exterior Face Brick Construction: Mortar mixes shall meet ASTM C 270, Type N, cement/lime mortar. Color of mortar to meet with Architect's approval.
- B. Exterior Block Back-Up Construction: Provide Portland cement/lime mortar as noted above conforming to ASTM C 270, Type N.
- C. Reinforced Concrete Block: Provide Portland cement/lime mortar conforming to ASTM C 270, Type S.

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- D. Mortar for Cement Cants: One (1) part Portland cement and four (4) parts sand, by volume.
 - E. Grout for Unit Masonry: Comply with ASTM C 476 for grout for use in construction of unit masonry. Use grout of consistency (fine or coarse) at time of placement which will completely fill all spaces intended to receive grout. Grout shall have a minimum compressive strength of 3000 psi when tested in accordance with ASTM C 1019.
 - F. Mixing
 - 1. General: Add cement just before mixing and mix dry. Use sufficient amount of water as necessary to produce workable mix. Mix in small batches to make plastic mass.
 - 2. Mixing: Machine mix all mortars in approved type mixer with device to accurately and uniformly control water. Add hydrated lime dry. Mix dry materials not less than two (2) minutes. Add water, then mix not less than three (3) minutes, not to exceed five (5) minutes. Mix only amount of mortar that can be used before initial set. Do not use mortar which has reached its initial set or two (2) hours after initial mixing, whichever comes earlier. Mortar may not be re-tempered. Clean mixer for each batch, whenever mortar type is changed, and at end of each day's work.
 - 3. Acceleration or other admixtures not permitted.
 - 4. Mortar shall have a flow after suction of not less than seventy-five (75) percent of that immediately after mixing as determined by ASTM C 91.
 - G. Admixtures
 - 1. No air-entraining admixtures or cementitious materials containing air-entraining admixtures shall be used in the mortar.
 - 2. No antifreeze compounds or other substances shall be used in the mortar to lower the freezing point.
 - 3. Calcium chloride or admixtures containing calcium chloride shall not be used in mortar.
- 2.4 WEEP HOLES
- A. Provide clear plastic weep holes 3/8" wide and 1-1/2" high by four (4) inches long.

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2.5 THRU-WALL FLASHING

- A. Provide sheet membrane flashing as part of exterior wall membrane system. Provide sealants and tapes as recommended by the manufacturer. Provide preformed corner sections "end dams" with system when flashing is discontinuous.
 - 1. Provide flashing for surface adhered applications at sheathed areas with 26 ga. stainless steel termination bar.
 - 2. Wall flashing shall have 26 ga. stainless steel drip edge adhered to edge of flashing, drip edge shall be set in sealant as specified in Section 079200.

2.6 MORTAR NET

- A. Provide 10" high HDPE "Mortar Net" open mesh mortar net of width to fit masonry cavity shown on drawings.

PART 3 EXECUTION

3.1 SURFACE CONDITIONS

- A. Inspection
 - 1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
 - 2. Verify that masonry may be completed in accordance with all pertinent codes and regulations, the referenced standards, and the original design.
 - 3. Do not start any work until mock-ups are approved by the Architect.
- B. Discrepancies
 - 1. In the event of discrepancy, immediately notify the Architect in writing.
 - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
 - 3. Starting of work by the Contractor means acceptance by the Contractor of the substrate.

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3.2 COORDINATION

- A. Carefully coordinate with all other trades to ensure proper and adequate interface of the work of other trades with the work of this Section.

3.3 PREPARATION

- A. Brick
 - 1. Wet brick having an initial rate of absorption greater than 30 grams per 30 square inches when tested per ASTM C67. Wet bricks by allowing water to run on the cubes or pallets of brick, or placing them in a large tank of water.
 - 2. Except for absorbent units specified to be wetted, lay masonry units dry.
- B. Concrete Block: Do not wet concrete block units.

3.4 INSTALLATION

- A. General
 - 1. Build walls to the full thickness shown. Build single wythe walls to the actual thickness of the masonry units, using units of nominal thickness shown.
 - 2. Build chases and recesses as shown or required for the work of other trades.
 - 3. Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.
 - 4. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to properly locate openings, movement type joints, returns and off-sets. Avoid the use of less than half size units at corners, jambs and wherever possible.
 - 5. Lay up walls plumb and true with courses level, accurately spaced and coordinated with other work.
 - 6. Provide templates made of steel studs for plumbing of two story masonry openings.
 - 7. Pattern Bond: Lay exposed masonry patterns as noted on drawings. If not shown, provide running bond. Lay concealed concrete block with all units in a wythe bonded by lapping not less than two (2) inches. Bond and interlock each course of

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each wythe at corners. Do not use units of less than four (4) inches horizontal face dimensions at corners or jambs.

8. Where possible, masonry walls and partitions shall be built after all overhead ducts, pipes and conduits are in place and tested. Masonry shall be neatly built around the items above. Walls and partitions shall be plumb, true to line and free from defects such as open cells, voids, dry joints and other similar defects. In rooms and spaces scheduled to have concrete block finish, all such surfaces including upper wall surfaces up to termination of structural ceiling in spaces without suspended ceilings, shall be made suitable for paint application. Cutting of openings in walls and partitions in place shall be done only with the approval of the Architect.
9. Do not use any brick that do not meet chippage and tolerances of the applicable ASTM standard noted herein for the grade, type or class of brick.
10. Mortar, ties and reinforcement must not extend into or bridge any expansion joints.

B. Mortar Bedding and Jointing

1. All joints between bricks shall be completely filled with mortar. Bed joints shall be beveled per BMI recommendations, with the brick then shoved in place. At cavity wall construction, care shall be taken that no excess mortar goes into masonry cavity. Head joints shall be completely filled with mortar and shall be formed by applying a full coat of mortar to the entire end or the entire side, as the case requires, and then shoving the mortar covered end and/or side of the brick tightly against the bricks previously laid; the practice of "slushing" by throwing mortar into the head joints will not be permitted. All brick shall be laid without disturbing the brick previously laid. Brick shall be laid within a minute or so after the mortar is placed. Dry or butt joints will not be permitted. Grouting shall be done only as necessary. Do not slush head joints.
2. After brick placement, mortar squeezed out of bed joints shall be cut off before tooling.
3. Lay concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on exterior walls and in all courses of piers, columns and pilasters, where solid CMU is used and where adjacent to cells or cavities to be reinforced or filled with concrete or grout.
 - a. To ensure alignment of brick and block coursing, adjust block back-up by cutting block to insure alignment of coursing or use adjustable anchorage.
4. Lay masonry walls with 3/8" joints unless otherwise shown on drawings.

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5. Tool exposed joints slightly concave after the mortar joint is "thumbprint" hard. Concealed joints shall be struck flush, including at any CMU schedule to receive a waterproofing or air barrier membrane.
 6. Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners at jambs to fit stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.
- C. Stopping and Resuming Work: Rake back 1/2 brick length in each course; do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if required) and remove loose masonry units and mortar prior to laying fresh masonry.
- D. Built-In Work
1. As the work progresses, build in items specified under this and other Sections of these specifications. Fill in solidly with masonry around built-in items.
 2. Mortar in door frames, access doors, louvers and other metal items embedded or built into masonry work solidly with mortar as the masonry units are laid up.
 3. Grout under lintels, bearing plates, and steel bearing on masonry with solid bed grout.
 4. Sleeves, pipes, ducts and all other items which pass through masonry walls shall be caulked with interior grade sealant meeting requirements of Section 079200, so as to be air tight and prevent air leakage. Refer to Section 078413 for packing of voids in rated masonry walls.
 5. Fill vertical cells of masonry units solid with grout which have anchoring, reinforcing rods, supporting or hanging devices embedded in the cell including stone anchors and window or curtain wall anchors.
 6. Fill vertical cells of masonry units solid with mortar on each side of door frames to sixteen (16) inches beyond.
 7. Unless otherwise noted, fill vertical cells of masonry units solid with grout which are below steel bearing plates, steel beams, and ends of lintels, to eight (8) inches beyond bearing and from floor to bearing.
 8. Place wire mesh in horizontal joint below masonry unit cells to be filled with mortar, to prevent mortar from dropping into unfilled cells below.
 9. Masonry indicated as being reinforced shall have all voids filled solid with grout. Grout shall be consolidated in place by vibration or other methods which insure

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complete filling of cells. When the least clear dimension of the grouted cell is less than two (2) inches, the maximum height of grout pour shall not exceed twelve (12) inches. When the least clear dimension is two (2) inches or more, maximum height of grout pour shall not exceed forty-eight (48) inches. When grouting is stopped for one (1) hour or longer, the grout pour shall be stopped 1-1/2" below the top of a masonry unit. Vertical bar reinforcing shall be accurately placed and held in position while being grouted, and shall be in place before grouting starts. All such reinforcing shall have a minimum clear cover of 5/8". Lap all bars a minimum of forty (40) bar diameters and provide steel spacer ties (not to exceed 192 bar diameter) to secure and position all vertical steel and prevent displacement during grouting. Provide continuous horizontal reinforcement embedded in mortar joints every second course.

E. Cutting and Patching

1. All exposed masonry which requires cutting or fitting shall be cut accurately to size with motorized carborundum or diamond saw, producing cut edges.
2. Do not saw cut any masonry openings in face brick construction without Architect's approval and after a procedure has been reviewed and approved.
3. Holes made in exposed masonry units for attachment of handrail brackets and similar items shall be neatly drilled to proper size.
4. All masonry which requires patching in exposed work, if approved by Architect, shall be patched neatly with mortar to match appearance of masonry as closely as possible and to the Architect's satisfaction. Rake back joints and use pointing mortar to match as required.

F. Solid Wall Construction

1. Fill the vertical longitudinal joint between wythes solidly with mortar by parging the in-place wythe and shoving units into the parging.
2. Tie wythes with continuous horizontal reinforcement embedded in mortar joints sixteen (16) inches o.c. vertically.

G. Cavity Walls

1. All exterior masonry walls, unless otherwise indicated, shall be cavity walls of thickness indicated.

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2. Two wythes of masonry cavity walls shall be securely tied together by horizontal joint reinforcement and ties anchored to reinforcement, as herein specified, spaced every other block course.
 - a. Where cavity back-up is concrete use ties specified herein spaced sixteen (16) inches o.c. both directions.
 3. Cavity between facing and backing wythe shall be kept clean and clear of all mortar droppings, and no mortar ledges shall project into the cavity. Temporary wood strips, cut to width of cavity and fitted with lift-up wires, shall be laid on the joint reinforcement and carefully lifted out before placement of the next layer of reinforcement. Any projecting mortar shall be spread over the back of the outer wythe immediately following the setting of the masonry unit.
 - a. Mortar net shall be installed at the bottom of each cavity over the flashing to protect weep holes.
 4. Concrete block back-up at cavity wall construction shall be anchored to slab at top with dovetail anchors spaced sixteen (16) inches o.c.
 5. Anchor CMU back-up with anchors as specified herein.
- H. Ties and Anchors for Masonry Construction
1. Provide ties and anchors as shown or specified, but not less than one metal tie, spaced not to exceed sixteen (16) inches o.c. horizontally and/or vertically. Provide additional ties within 1'-0" of all openings and adjacent to expansion joints and spaced not more than 16" apart around perimeter of openings.
 2. Anchor masonry to structure complying with the following:
 - a. Provide an open space not less than 1/2" in width between masonry and structural member, unless otherwise shown. Keep open space free of mortar or other rigid materials.
 3. Attach brick veneer to cold formed metal framing by anchoring brick to studs using specified anchors penetrating through sheathing and through flange of stud. Prior to application of anchors cover sheathing and vapor barrier with tape specified herein. Space anchors 8" o.c. at each stud; provide stainless steel screw anchors for attaching anchor to studs.
- I. Control and Expansion Joints

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1. Provide expansion, control and isolation joints in masonry as shown. Build in related items as the masonry work progresses.
2. CMU Control Joint Spacing: If location of control joints is not shown, place vertical joints spaced not to exceed 25'-0" o.c. In addition, locate joints at points of natural weakness in the masonry work, including the following:
 - a. At structural column or joint between bay.
 - b. Above control joints in the supporting structure.
 - c. Above major openings at end of lintels upward and below at ends of sills downward. Place at one side of jamb for openings less than 6'-0" wide and at both sides for openings over 6'-0" wide.
 - d. At reduction of wall thickness.
 - e. Where masonry abuts supporting structure.
 - f. If additional joints are required, indicate same on approved shop drawings.
3. Brick Veneer Expansion Joint Spacing: Vertical expansion joints in brick veneer construction shall be located maximum 20'-0" o.c. unless otherwise noted in addition to expansion joints located within 2'-0" of each corner of the building.

J. Lintels

1. For concrete block walls, use specially formed U-shaped concrete block lintel units with reinforcing bars in accordance with the following table, filled with grout.

Number and Size of Reinforcing Bars Required at Concrete Block Lintels		
Maximum Clearance Span	Wall Width	Rebar No. - Size
2'-0" to 6'-0" 6'-0" to 8'-0"	6"	2 - #3 2 - #4
2'-0" to 6'-0" 6'-0" to 8'-0"	8"	2 - #3 2 - #4

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2'-0" to 6'-0" 6'-0" to 8'-0"	12"	3 - #3 3 - #4
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2. U-shaped concrete block lintels shall extend a minimum of 8" at each side of opening.

3.5 FLASHING/WEEP HOLES

- A. General: Space weeps 16" o.c. unless otherwise shown on drawings. Weeps shall occur immediately above the flashing.
- B. Prepare masonry surfaces so that they are smooth and free from projections that could puncture flashing.
- C. Flashing shall be placed, generally, at bottoms of cavity wall construction, over all wall openings, window jambs, at sills of window, and in other locations where indicated on the drawings. Flashing shall overlap a minimum of 6". At bottoms of cavity walls, the flashing shall be built extending from the exterior face of the brick, up and into the mortar joint 2" at the inner wythe of the CMU back-up. At concrete spandrel beams and columns the flashing shall be installed with a termination bar. Extreme care shall be exercised in placing the masonry materials not to damage the flashing. Flashing damaged during the masonry erection shall be repaired or replaced by the Contractor at no additional cost to the Owner. Discontinuous flashing shall terminate with an end dam in a head joint, rising at least 1".
- D. When spanning an air space, flashing shall be supported with a mortar wash, insulation or treated wood blocking.
- E. Where flashing is penetrated by anchors, patch flashings at penetration using adhesive and mastic recommended by the manufacturer to insure watertight seal.
- F. Install flashing in accordance with manufacturer's instructions, using adhesive, primer, thinner, cleaner and mastic as recommended by flashing manufacturer.
 1. Flashing shall overlap adjacent piece of flashing a minimum of 6".
- G. Provide drip edge when flashing extends beyond face of brick.

3.6 CLEANING, PROTECTION, ADJUSTMENT

- A. Protection

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1. The Contractor shall take adequate precautions for the protection of all surfaces against mortar spatter, and shall immediately remove any such spatter should it inadvertently occur, leaving no stain or discoloration.
2. Excess mortar shall be wiped off the masonry surfaces as the work progresses.
3. Wood coverings shall be placed over all such masonry surfaces as are likely to be damaged during the progress of the entire project.
4. Protective measures shall be performed in a manner satisfactory to the Architect.
5. Damaged masonry units shall be replaced to satisfaction of the Architect.
6. Exterior masonry walls shall be draped with waterproof covering until copings are in place, to prevent water penetration in cavity.

B. Clean-Up

1. Upon completion, all exposed masonry shall be thoroughly cleaned following recommendations of the BIA Technical Note No. 20. Before applying any cleaning agent to the entire wall, it shall be applied to a sample wall area of approximately 4' x 4' in a location approved by the Architect. No further cleaning work may proceed until the sample area has been approved by the Architect, after which time the same cleaning materials and method shall be used on the remaining wall area. If stiff brushes and water do not suffice, the surface shall be thoroughly saturated with clear water and then scrubbed with a solution of an approved detergent masonry cleaner, equal to "Vana Trol" made by ProSoCo Inc. or equal made by Diedrich or approved equal, mixed and applied as per manufacturer's directions, followed immediately by a thorough rinsing with clear water. All adjacent non-masonry surfaces shall be thoroughly protected during cleaning.
 - a. Unless otherwise required by cleaning agent manufacturer use only low pressure device (30 to 50 psi) for application of cleaning agent and water rinsing.

- C. Pointing: Point any defective joint with mortar identical with that specified for that joint.

END OF SECTION

SECTION 055000 MISCELLANEOUS METALS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the miscellaneous metal work as indicated on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Rough hardware.
 - 2. Light steel framing and supports not included as part of work of other trades.
 - 3. Steel framing, bracing, supports, anchors, bolts, shims, fastenings, and all other supplementary parts indicated on drawings or as required to complete each item of work of this Section.
 - 4. Galvanizing of all work of this section and separation of dissimilar metals for work of this Section.
 - 5. Cutting, fitting, drilling and tapping work of this Section to accommodate work of other Sections and of concrete, masonry or other materials as required for attaching and installing work of this Section.

1.3 QUALITY ASSURANCE

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.
- B. Shop Assembly: Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.
- C. Reference Standards: The work is subject to requirements of applicable portions of the following standards:
 - 1. "Manual of Steel Construction," American Institute of Steel Construction.
 - 2. AWS D1-1 "Structural Welding Code," American Welding Society.
 - 3. SSPC SP-3 "Surface Preparation Specification No. 3, Power Tool Cleaning," Steel Structures Painting Council.
 - 4. SSPC PA-1 "Painting Application Specification," Steel Structures Painting Council.
 - 5. "Handbook on Bolt, Nut and Rivet Standards," Industrial Fasteners Institute.

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- D. Steel Materials: For steel to be hot dip-galvanized, provide steel chemically suitable for metal coatings complying with the following requirements: carbon below 0.25 percent, silicon below 0.24 percent, phosphorous below 0.05 percent, and manganese below 1.35 percent. Notify galvanizer if steel does not comply with these requirements to determine suitability for processing.
- E. Engage the services of a galvanizer who has demonstrated a minimum of five (5) years' experience in the successful performance of the processes outlined in this specification in the facility where the work is to be done and who will apply the galvanizing and coatings within the same facility as outlined herein. The Architect has the right to inspect and approve or reject the galvanizer/galvanizing facility.
- F. The galvanizer/galvanizing facility must have an ongoing Quality Control/Quality Assurance program which has been in effect for a minimum of five years and shall provide the Architect with process and final inspection documentation. The galvanizer/galvanizing facility must have an on-premise testing facility capable of measuring the chemical and metallurgical composition of the galvanizing bath and pickling tanks.
- G. Inspection and testing of hot-dip galvanized coating shall be done under the guidelines provided in the American Hot-Dip Galvanizers Association (AGA) publication "Inspection of Products Hot-Dip Galvanized After Fabrication."

1.4 SUBMITTALS

- A. Manufacturer's Literature: Submit manufacturer's specifications, load tables, dimension diagrams, anchor details and installation instructions for products to be used in the fabrication of miscellaneous metal work, including paint products.
- B. Shop Drawings: Shop drawings for the fabrication and erection of all assemblies of miscellaneous iron work which are not completely shown by manufacturer's data sheets. Include plans and elevations at not less than 1" to 1'-0" scale, and include details of sections and connections at not less than 3" to 1'-0" scale. Show anchorage and accessory items.
- C. Welding shall be indicated on shop drawings using AWS symbols and showing length, size and spacing (if not continuous). Auxiliary views shall be shown to clarify all welding. Notes such as 1/4" weld, weld and tack weld are not acceptable.
- D. Certification: For items to be hot-dip galvanized, identify each item galvanized and to show compliance of application. The Certificate shall be signed by the galvanizer and shall contain a detailed description of the material processed and the ASTM standard used for the coating and, the weight of the coating. In addition, and as attachment to Certification, submit reports of testing and inspections indicating compliance with the provisions of this Section.

PART 2 PRODUCTS

2.1 MATERIALS

A. Metals

- 1. Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface

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blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.

2. Steel Plates, Shapes and Bars: ASTM A 36.
 3. Steel Bar Grating: ASTM A 1011 or ASTM A 36.
 4. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.
 5. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A 153.
- B. Grout: Non-shrink, non-metallic grout conforming to the requirements of Section 033000.
- C. Fasteners
1. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
 2. Bolts and Nuts: Regular hexagon head type, ASTM A 307, Grade A.
 3. Anchor Bolts: ASTM F 1554, Grade 36.
 4. Lag Bolts: ASME B18.2.1.
 5. Machine Screws: ASME B18.6.3.
 6. Plain Washers: Round, carbon steel, ASME B18.22.1.
 7. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.
 8. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.
 9. Lock Washers: Helical spring type carbon steel, ASME B18.21.1.
- D. Shop Paint: Shop prime all non-galvanized miscellaneous metal items using Series 88 Azeron Primer made by Tnemec, ICI Devoe "Rust Guard" quick dry alkyd shop coat No. 41403, or "Interlac 393" by International Protection Coatings.
1. If steel is to receive high performance coating as noted in Section 099000, shop prime using primer noted in Section 099000.
- E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- F. Galvanizing Repair Coating: For touching up galvanized surfaces after erection, provide repair coating that is V.O.C. compliant, equal to "Silver Galv" made by Z.R.C. Worldwide or approved equal. Apply to a dry film thickness of 1.5 to 3.0 mils.

2.2 GALVANIZING

- A. Scope: All ferrous metal in these specifications to be galvanized, shall be cleaned and then hot-dipped galvanized after fabrication as provided by Duncan Galvanizing or approved equal.

- B. Avoid fabrication techniques that could cause distortion or embrittlement of steel items to be hot-dip galvanized. Fabricator shall consult with hot-dip galvanizer regarding potential warpage problems or handling problems during the galvanizing process that may require adjustment of fabrication techniques or design before finalizing shop drawings and beginning of fabrication.
- C. Cleaning: Thoroughly clean metal surfaces of all mill scale, rust, dirt, grease, oil, moisture and other contaminants prior to galvanizing.
- D. Application: Hot-dip galvanizing shall conform to the following:
 - 1. ASTM A 143: Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel.
 - 2. ASTM A 123: Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - 3. ASTM A 153: Galvanized Coating on Iron and Steel Hardware - Table 1.
 - 4. ASTM A 384: Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies.
 - 5. ASTM A 385: Practice for Providing High Quality Zinc Coatings.
 - 6. ASTM A 924: Galvanized Coating on Steel Sheets.
 - 7. Minimum weight of galvanized coating shall be two (2) oz. per square foot of surface.
- E. Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.
- F. All galvanized materials must be inspected for compliance with these specifications and marked with a stamp indicating the name of the galvanizer, the weight of the coating, and the appropriate ASTM number.
- G. To minimize surface imperfection (e.g.: flux inclusions), material to be galvanized shall be dipped into a solution of Zinc Ammonium Chloride (pre-flux) immediately prior to galvanizing. The type of galvanizing process utilizing a flux blanket overlaying the molten zinc will not be permitted.
- H. After galvanizing all materials not exposed to view must be chromated by dipping material in a 0.2% chromic acid solution.
- I. Galvanized surfaces, where exposed to view, must have a smooth, level surface finish. Where this does not occur, piece shall be rejected and replaced to the acceptance of the Architect.

2.3 PROTECTIVE COATINGS

- A. Whenever dissimilar metals will be in contact, separate contact surfaces by coating each contact surface prior to assembly or installation with one coat of specified bituminous paint, which shall be in addition to the specified shop prime paint. Mask off those surfaces not required to receive protective coating.

2.4 WORKMANSHIP

A. General

1. Miscellaneous metal work shall be fabricated by an experienced fabricator or manufacturer and installed by an experienced tradesman.
2. Materials, methods of fabrication, fitting, assembly, bracing, supporting, fastening, operating devices, and erection shall be in accordance with drawings and specifications, approved shop drawings, and best practices of the industry, using new and clean materials as specified, having structural properties sufficient to safely sustain or withstand stresses and strains to which materials and assembled work will be subjected.
3. All work shall be accurately and neatly fabricated, assembled and erected.

B. Shop Assembly: Insofar as practicable, fitting and assembly of work shall be done in shop. Shop assemble work in largest practical sizes to minimize field work. It is the responsibility of the miscellaneous metal subcontractor to assure himself that the shop-fabricated miscellaneous metal items will properly fit the field condition. In the event that shop-fabricated miscellaneous metal items do not fit the field condition, the item shall be returned to the shop for correction.

C. Cutting: Cut metal by sawing, shearing, or blanking. Flame cutting will be permitted only if cut edges are ground back to clean, smooth edges. Make cuts accurate, clean, sharp and free of burrs, without deforming adjacent surfaces or metals.

D. Holes: Drill or cleanly punch holes; do not burn.

E. Connections: Make connections with tight joints, capable of developing full strength of member, flush unless indicated otherwise, formed to exclude water where exposed to weather. Locate joints where least conspicuous. Unless indicated otherwise, weld or bolt shop connections; bolt or screw field connections. Provide expansion and contraction joints to allow for thermal movement of metal at locations and by methods approved by Architect.

1. Welding

- a. Shall be in accordance with AWS D1.1 Structural Welding Code of the American Welding Society and shall be done with electrodes and/or methods recommended by the manufacturer of the metals being welded.
 - b. Welds shall be continuous, except where spot welding is specifically permitted. Welds exposed to view shall be ground flush and dressed smooth with and to match finish of adjoining surfaces; undercut metal edges where welds are required to be flush.
 - c. All welds on or behind surfaces which will be exposed to view shall be done so as to prevent distortion of finished surface. Remove weld spatter and welding oxides from all welded surfaces.
2. Bolts and Screws: Make threaded connections tight with threads entirely concealed. Use lock nuts. Bolts and screw heads exposed to view shall be flat and countersunk. Cut off projecting ends of exposed bolts and screws flush with nuts or adjacent metal.

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- F. Operating Mechanism: Operating devices (i.e. pivots, hinges, etc.) mechanism and hardware used in connection with this work shall be fabricated, assembled, installed and adjusted after installation so that they will operate smoothly, freely, noiselessly and without excessive friction.
- G. Built-In Work: Furnish anchor bolts, inserts, plates and any other anchorage devices, and all other items specified under this Section of the Specifications to be built into concrete, masonry or work of other trades, with necessary templates and instructions, and in ample time to facilitate proper placing and installation.
- H. Supplementary Parts: Provide as necessary to complete each item of work, even though such supplementary parts are not shown or specified.
- I. Coordination: Accurately cut, fit, drill and tap work of this Section to accommodate and fit work of other trades. Furnish or obtain, as applicable, templates and drawings to or from applicable trades for proper coordination of this work.
- J. Exposed Work
 - 1. In addition to requirements specified herein and shown on drawings, all surfaces exposed to view shall be clean and free from dirt, stains, grease, scratches, distortions, waves, dents, buckles, tool marks, burrs, and other defects which mar appearance of finished work.
 - 2. Metal work exposed to view shall be straight and true to line or curve, smooth arrises and angles as sharp as practicable, miters formed in true alignment, profiles accurately intersecting, and with joints carefully matched to produce continuity of line and design.
 - 3. Exposed fastenings, where permitted, shall be of the same material, color and finish as the metal to which applied, unless otherwise indicated, and shall be of the smallest practicable size.
- K. Preparation for Hot-Dip Galvanizing: Fabricator shall correctly prepare assemblies for galvanizing in consultation with galvanizer and in accordance with applicable Reference Standards and applicable AGA publications for the "Design of Products to be Hot-Dip galvanized After Fabrication." Preparation shall include but not be limited to the following:
 - 1. Remove welding flux.
 - 2. Drill appropriate vent holes and provide for drainage in inconspicuous locations of hollow sections and semi-enclosed elements. After galvanizing, plug vent holes with shaped lead and grind smooth.

2.5 MISCELLANEOUS METALS ITEMS

- A. Rough Hardware
 - 1. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 Sections.

2. Fabricate items to sizes, shapes and dimensions required. Furnish malleable iron washers for heads and nuts which bear on wood connections; elsewhere, furnish steel washers.
- B. Miscellaneous Light Steel Framing
1. Light steel framing, bracing, supports, framing, clip angles, shelf angles, plates, etc., shall be of such shapes and sizes as indicated on the drawings and details or as required to suit the condition and shall be provided with all necessary supports and reinforcing such as hangers, braces, struts, clip angles, anchors, bolts, nuts, welds, etc., as required to properly support and rigidly fasten and anchor same in place and to steel, concrete, masonry and all other connecting and adjoining work.
 2. All light steel framing steel shall be furnished and erected in accordance with the applicable requirements of the "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" by the American Institute of Steel Construction and as specified herein.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where miscellaneous metal is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 ERECTION

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.
- B. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry, or similar construction.
- C. Fitting Connections: Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot dip galvanized after fabrication, and are intended for bolted or screwed field connections.
- D. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance, and quality of welds made, and methods used in correcting welding work.
- E. Field Touch-Up of Galvanized Surfaces: Touch-up shop applied galvanized coatings damaged during handling and installation. Use galvanizing repair coating specified herein for galvanized surfaces.

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END OF SECTION

SECTION 062000 - 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. Work of this Section includes all labor, materials, equipment, and services necessary to complete the carpentry work as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Blocking and miscellaneous wood.
 - 2. Rough hardware.

1.3 RELATED SECTIONS

- A. Modified bitumen roofing – Section 075216.

1.4 QUALITY ASSURANCE

- A. Lumber Standard: Comply with PS 20.
- B. Plywood Standard: Comply with PS 1 and American Plywood Assoc. (APA).
- C. Shop fabricate carpentry work to the extent feasible and where shop fabrication will result in better workmanship than feasible for on-site fabrication.
- D. Grade Marks: Identify lumber and plywood by official grade mark.
 - 1. Lumber: Grade stamp to contain symbol of grading agency certified by Board of Review, American Lumber Standards Committee, mill number or name, grade of lumber, species grouping or combination designation, rules under which graded where applicable, and condition of seasoning at time of manufacture.
 - a. MC-15 or KD: Maximum of fifteen (15) percent moisture content.

1.5 SUBMITTALS

- A. Pressure Treatment: Include certification by treating plant stating chemicals and process used, net amount of salts retained and conformance with applicable standards.
- B. Fire-Retardant Treatment: Include certification by treating plant that treatment material complies with governing ordinances and that treatment will not bleed through finished surfaces.

1.6 PRODUCT HANDLING

- A. Deliver carpentry materials to the site ready to use with each piece of lumber clearly marked as to grade, type and mill, and place in an area protected from the elements.
- B. Deliver rough hardware in sealed kegs and/or other containers which shall bear labels as to type and kind.
- C. Pile lumber for rough usage, when delivered to the site in stacks to insure drainage and with a minimum clearance of six (6) inches above grade. Cover stacks with tarpaulins or other watertight coverings. Store grounds and similar small sized lumber inside the building as soon as possible after delivery.
- D. Do not store seasoned lumber in wet or damp portions of the building.
- E. Protect fire retardant treated materials against high humidity and moisture during storage and erection.
- F. Remove delivered materials which do not conform to specified grading rules or are otherwise not suitable for installation from the job site and replace with acceptable materials.

1.7 JOB CONDITIONS

- A. Installer must examine the substrates and supporting structure and the conditions under which the carpentry work is to be installed, and notify the Contractor in writing of conditions detrimental to the work. Do not proceed with the installation until unsatisfactory conditions have been corrected in a manner acceptable to the Installer and the Architect.
- B. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow proper attachment of other work.

PART 2 PRODUCTS

2.1 WOOD MATERIAL

- A. General
 - 1. All wood shall be sound, flat, straight, well seasoned, thoroughly dry and free from all defects. Warped or twisted wood shall not be used.
 - 2. For miscellaneous wood blocking, grounds, furring as required, use Utility Grade Coastal Douglas Fir or Southern Pine, free from knots, shakes, rot or other defects, straight, square edges and straight grain, air seasoned with maximum moisture content of nineteen (19) percent. Wood shall be S4S, S-Dry, complying with PS-20.
- B. Wood Treatment
 - 1. All interior wood material specified herein shall be fire retardant treated to comply with the AWPA standard U1 to achieve a flame spread rating of not more than 25 (UL Class "FR-S") when tested in accordance with UL Test 723 or ASTM E 84.

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The fire retardant chemicals used to treat the lumber must comply with FR-1 of AWPA Standard P49 and be free of halogens, sulfates and ammonium phosphate.

- a. After treatment, kiln dry to a moisture content of fifteen (15) percent; if wood is to be painted or finished, kiln dry to a moisture content of twelve (12) percent. Treatment shall be equal to "Dricon" made by Arch Wood Protection Inc. or approved equal. Provide UL approved identification on treated materials.
2. For exterior blocking, roofing and sheet metal, pressure treat wood with copper azole, Type B (CA-B); ammoniacal copper quat (ACQ) or similar preservative product that contains no arsenic or chromium. Preservative shall comply with AWPA Standard U1, (.25 lbs./cubic foot of chemical in wood).
 - a. After treatment, kiln dry to a maximum moisture content of fifteen (15) percent. Treatment shall be equal to "Wolmanized Natural Select" made by Arch Wood Protection Inc. or approved equal.
3. Treated wood which is cut or otherwise damaged shall be further treated in accordance with the AWPA Standard M-4.

2.2 HARDWARE

- A. Rough Hardware for Treated Woods and Exterior Use: Type 316 stainless steel.
- B. Nails: Common steel wire, untreated for interior work as per ASTM F 1667.
- C. Bolts: Standard mild steel, square head machine bolts with square nuts and malleable iron or steel plate washers or carriage bolts with square nuts and cut washers conforming to the following:
 1. Bolts: ASTM A 307, Grade A.
 2. Nuts: ASTM A 563.
 3. Lag Screws and Bolts: ASME B 18.2.1.
- D. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
 2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2; use stainless steel for treated woods and exterior use.
- E. Wood Screws: ASME B 18.6.1.
- F. Concrete and Masonry Anchors: Standard expansion-shield self-drilling type concrete

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where carpentry is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 BLOCKING AND MISCELLANEOUS WOOD

A. General

- 1. Erect rough carpentry true to line, levels and dimensions required; squared, aligned, plumbed, and securely fastened in place.
- 2. Shim where required to true up furring, blocking and the like. Use wood or metal shims only.
- 3. Do all cutting, fitting, drilling and tapping of other work as required to secure work in place and to perform the work included herein. Do all the cutting and fitting of carpentry work, for the work of other trades as required.

B. Blocking and Miscellaneous Wood

- 1. Furnish and install all wood grounds, furring, blocking, curbs, bucks, nailers, etc., that may be necessary and required in connection with the carpentry and with the work described for any other trades and including required carpentry for electrical fixtures. All blocking and nailers shall be continuous wherever required, whether or not so indicated.
- 2. Blocking shall be as required for the proper installation of the finished work and for items in mechanical sections as required. Blocking, edgings, stops, nailing strips, etc., shall be continuous, unless distinctly noted otherwise. Provide blocking as required to install all equipment. Provide blocking and nailers where shown or required to fasten interior sheet metal work.
- 3. Fastening for wood grounds, furring and blocking shall be of metal and of type and spacing as best suited to conditions. Hardened steel nails, expansion screws, toggle bolts, self-clinching nails, metal plugs, inserts or similar fastenings shall be used, of suitable type and size to draw the members into place and securely hold same.

C. Rough Lumber for Roofing and Sheet Metal

- 1. Furnish and install all wood nailing strips and wood blocking required in connection with respective types of roofing, fans, flashings, and sheet metal work, using preservative treated wood as herein before specified.
- 2. Wood blocking shall be of sizes and shapes as indicated on the drawings and/or designed for the reception of curb flashings for roof ventilators and similar items.
- 3. All nailing strips and blocking shall be carried out in accordance with the printed installation instructions, and/or recommendations of the accepted manufacturer of

the roofing materials, and in coordination and cooperation with the sheet metal work trades.

4. All blocking and nailing strips shall be firmly secured in place using counter bored bolt and nut fastenings, or secured by any other proposed flush surfaced fastenings.
5. Wood nailing strips or blocking required to be embedded in concrete work shall be furnished in time due for placing, prior to start of concrete operations. Locations and spacings of nailing strips or blocking shall be performed in coordination with the concrete trades, as required for respective installations.

3.3 ROUGH HARDWARE

- A. Securely fasten rough carpentry together. Nail, spike, lag screw or bolt as required by conditions encountered in the field and the Contract Documents.
- B. Provide rough or framing hardware, such as nails, screws, bolts, anchors, hangers, clips, inserts, miscellaneous fastenings, and similar items of the best quality and of the proper size and kind to adequately secure the work together and in place, in a rigid and substantial manner.
- C. Secure rough carpentry to masonry with countersunk bolts in expansion sleeves or other acceptable manner, with fastenings not more than sixteen (16) inches apart. Secure woodwork to hollow masonry with toggle bolts spaced not more than sixteen (16) inches apart.
- D. Countersink bolts in nailers and other rough woodwork and include washers and nuts. Cut bolts off flush with surfaces and peen as may be required to receive finished work.
- E. Inserts to secure wood nailers to concrete shall be malleable iron threaded inserts with 3/8" diameter bolts of length to allow for countersinking. Locate at end of each nailer and at intervals not exceeding thirty (30) inches o.c.
- F. Furnish to the mason for building into the work, or attaching the work which is to be built in, anchors, bolts, wall plates bolted to masonry, corrugated wall plugs, nailing blocks, etc., which are required for the proper fastening and installation for the work or other items as called for in this Section.
- G. Detailed instructions with sketches of necessary requirements, shall be given to the masonry trade showing the location and other details of such nailing devices.

3.4 CLEANING UP

- A. General: Keep the premises in a neat, safe and orderly condition at all times during execution of this portion of the work, free from accumulation of sawdust, cut-ends and debris.
- B. Sweeping
 1. At the end of each working day, or more often if necessary, thoroughly sweep all surfaces where refuse from this portion of the work has settled.
 2. Remove the refuse to the area of the job site set aside for its storage.

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3. Upon completion of this portion of the work, thoroughly broom clean all surfaces.

END OF SECTION

SECTION 075210

MODIFIED BITUMEN MEMBRANE ROOFING

PART I - GENERAL

1.01 GENERAL REQUIREMENTS

Work of this Section as shown or specified shall be in accordance with the requirements of the Contract Documents.

1.02 SECTION INCLUDES

A. Work of this section shall include, but not be limited to:

1. Preparation and cleaning of substrate surfaces.
2. Temporary roofing.
3. Wood blocking.
4. Thermal Roof Insulation (Polyisocyanurate, Cover Boards)
5. Torch, cold or self-adhesive applied modified bitumen membrane composite.
6. Cold fluid-applied, reinforced resin membrane flashing.
7. Fasteners.
8. Adhesives
9. Walkway
10. Warranty requirements.

1.03 RELATED SECTIONS

The work of this part shall be coordinated with the applicable requirements of the following:

Division 1 - General Requirements
- 001900 - Project Close-Out

Division 7 - 076200 – Miscellaneous Metals

1.04 QUALITY ASSURANCE

A. Work shall conform to the latest edition of applicable reference specifications and to applicable codes and requirements of local authorities having jurisdiction.

B. References

Some products and execution are specified in this section by reference to published specifications or standards of the following:

Federal Specifications	FS	
National Fire Protection Association	NFPA	
National Roofing Contractors Association	NRCA	
Occupational Safety & Health Act	OSHA	
Steel Deck Institute	SDI	
Sheet Metal and Air Conditioning Contractors National Association, Inc.		SMACNA
Single Ply Roofing Institute	SPRI	

C. Regulatory Agencies

1. Underwriters' Laboratory (UL):

Products and assemblies in the work of this Specification shall provide fire resistance to meet construction requirements of UL Class A.

2. American National Standards Institute (ANSI).

ASCE 7 (Current Version) - Minimum Design Loads for Buildings and other Structures.

D. Reference Standards

ANSI/SPRI 1A-1 2005	Standard Field Test Procedure for Determining the Mechanical Uplift Resistance of Insulation Adhesives over Various Substrates.
ASTM C-165	Standard Test method for measuring compressive properties of thermal insulation
ASTM C-177	Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot Plate Apparatus
ASTM C-209	Moisture Absorption
ASTM C-236	Test method for Steady-State Thermal Performance of Building Assemblies by Means of a guarded Hot Box
ASTM C-272	Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions
ASTM C-356	Linear Shrinkage
ASTM C-421	Tumbling Friability of Preformed Block-Type Thermal Insulation
ASTM C-518	Steady-State Heat Flux Measurements and Thermal Transmission Properties
ASTM C-578	Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
ASTM C-665	Corrosiveness to Steel
ASTM C-726	Standard Specification for Mineral Fiber Roof Insulation Boards
ASTM C-795	Stainless Steel Stress Corrosion Specification as per Test Methods C871 and C692 (US Nuclear Regulatory Commission, Reg. Guide # 1.36: US Military Specifications MIL I-24244 (all versions including B and C
ASTM C-1289	Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
ASTM C-1303	Standard test method for estimating the long-term change in the thermal resistance of un-faced, closed-cell plastic foams by slicing and scaling under controlled laboratory conditions
ASTM C-1371	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers
ASTM C-1549	Standard Test Method for Determination of Solar Reflectance Near Ambient Temperatures Using a Portable Solar Reflectometer
ASTM C-1918-06 (2015)	Standard Test Method for Measuring Solar Reflectivity of Horizontal and Low Slope Surfaces
ASTM D-751	Standard Test Methods for Coated Fabrics
ASTM D-1079	Terminology Relating to Roofing and Waterproofing
ASTM D-1621	Compressive Properties of Rigid Cell Plastics
ASTM D-2103	Standard Specification for Polyethylene Film and Sheeting
ASTM D-2126	Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging
ASTM D 5147	Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material

ASTM D 5849	Standard Test Method for Evaluating Resistance of Modified Bituminous Roofing Membrane to Cyclic Fatigue (Joint Displacement)
ASTM D-6163	Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements
ASTM D-7877-14	Standard Guide for Electronic Methods for Detecting and Locating Leaks in Waterproofing Membranes
ASTM E-84 (UL 723)	Test Method for Surface Burning Characteristics of Building Materials
ASTM E-96	Test Method for Water Vapor Transmission of Materials
ASTM E-119 (UL263)	Standard test method for fire tests of building construction and materials. See UL Roofing and Materials Directory for Assembly Details.
ASTM E119 (UL790)	Standard Test Methods for Fire Tests of Roof Coverings.
ASTM E-408	Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques
ASTM E-903-96	Standard Test Method for Solar Absorptance, Reflectance and Transmittance of Materials using Integrating Spheres
ASTM E-1980	Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces
ASTM F-1869-11	Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Sub-Floor Using Anhydrous Calcium Chloride
ASTM F-2170-11	Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs using in-situ Probes
ANSI/UL 1256	Steiner Tunnel Fire Classified Construction
CAN4 S114	Non-Combustibility in Building Materials
Factory Mutual Global	Approval Standard 4450/4470
ICRI (2002)	Technical Guidelines: Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays
NRDCA-100	Guideline for Field Application of Aggregate Insulating Concrete Roof Deck Systems
NRDCA-175	Guideline for Field Application of Cellular Insulating Concrete Roof Deck Systems
NRDCA-250	Field Quality Control Procedures for Application of Insulating Concrete Roof Deck Systems
NRDCA-300	Procedures to Determine the Accuracy of Material Measuring Equipment for Lightweight Insulating Concrete
NRDCA-400	Guideline for Field Application of Lightweight Insulating Concrete Reroofing/Recover Systems.

E. Contractor Qualification

1. Provide a letter from Material Manufacturer stating that Contractor is an approved applicator and employs personnel that is trained and experienced in the application of the materials specified. Letter shall be on letterhead of Material Manufacturer and shall be signed by an officer of the company.
2. Provide a copy of the Approved Applicator Agreement between Contractor and Material Manufacturer.
3. Provide written evidence that Contractor has been in the business of installing specified roofing and/or waterproofing products for at least five (5) years (consecutively). Provide project experience of not less than five (5) installations similar to scope of this Project. Give name of Project, Location of Project, and name of Owner or his designated Representative for each installation listed.
4. Provide copies of all warranties (ref. Section 001900).

F. Roof System Manufacturer Qualification

1. Primary Roof System Manufacturer shall provide a list, including contact information, of at least five (5) roof installations (reference projects). The reference project shall meet the following criteria:
 - a. Scope shall be same or similar to this roof project.
 - b. Roof construction shall include all materials/components proposed/specified for the roof construction.
 - c. All materials/components shall be manufactured and/or warranted by the primary roof system manufacturer. List materials/components that are supplied/manufactured by secondary manufacture.
2. Copy of the manufacturer's warranty that will be issued for the project.

1.05 SUBMITTALS

A. General

All submittals shall be provided in accordance with the provisions of the Contract Documents and as specified herein.

B. List of Materials

1. Submit complete list of materials proposed for use on this Project for work of this Section. List shall designate specific Manufacturer and product designation, along with specific quality reference (for instance, FM listing, ASTM Specification No.).
2. Submit copies of Certificate of Compliance from each Manufacturer of materials for work of this Section. Certificate shall state compliance with requirements of Contract Documents.

C. Product Data

1. Submit Manufacturer's technical and physical data on system's materials and products required in this Section.
2. Manufacturer's data required to demonstrate compliance with specified requirements.
3. Material Safety Data Information (MSDS). Indicate compliance with local, state, and national VOC regulations/requirements.

D. Manufacturer's Data for Use in Construction Administration

1. Submit Manufacturer's printed instructions for installation of temporary roofing (include recover board), and final roofing, including roof deck insulation system, roof membrane and flashing (modified bitumen membrane and reinforced, cold-fluid applied resin membrane), securement against wind forces and protective overburden. Include and clearly identify modifications required by this specification

E. Samples and Mock-Ups

1. Submit samples of the following:
 - a. Modified Bitumen Base Ply (min. 12" x 12").
 - b. Modified Bitumen Cap Ply (min. 12" x 12").
 - c. Thermal Insulation/Cover Boards (min. 12" x 12").

2. Mock-Up Construction:

Install at project site mock-ups using acceptable products and manufacturer approved installation methods.

- a. Mock up inspection is contingent on receipt/approval of shop drawings and related submittals. Mock-up inspections shall be conducted jointly by Contractor, Material Manufacturer(s), Roofing Consultant, Architect.
- b. Submit schedule of mock-up construction prior to commencement of the Work. Schedule shall include (1) type/description of mock up, (2) location (plan), (3) approved shop drawings/submittals.
- c. Mock-ups shall serve as the standard by which other work is to be installed and evaluated. Once approved, retain mock-ups as standard for evaluating completed work.
- d. Construct the following mock-ups:
 - i. Low Parapet construction: 15 LF min of raised low parapet construction.
 - ii. Perimeter Flashing: 15 lf min. of ea. type; include termination at flanking/rising building wall construction
 - iii. Flashing at Irregular Penetration: 1 location (ea. type)

Reference enclosed Plans/Details for additional mock-up requirements.

- e. Notify Consultant 72 hours prior to mock-up work. Provide required submissions inclusive of shop drawings prior to mock-up construction.
- f. Mock-ups shall be used to verify Contractor=s understanding of the roof system installation including but not limited to substrate preparation/cleaning, placement/securement of roof deck insulation system, flashing systems, and compliance with manufacturer=s application requirements.
- g. Mock-ups shall be used to complete pre-installation requirements/testing of the Material Manufacturer, including but not limited to substrate acceptance, adhesion to substrate, substrate moisture, material coverage rates, integration of pre-fabricated flashing elements.
- h. Provide written acceptance of the Material Manufacturer of the following:

- i. Acceptance of substrate(s)
- ii. Preparation and cleaning of each substrate type.
- iii. Primer type/coverage
- iv. Moisture content for substrate material/composite.
- v. Adhesion to substrate.
- vi. Resin coverage for reinforced, cold-fluid applied resin membrane flashing.
- vii. Membrane application (temporary, final).
- viii. Flashing application (temporary, final).
- ix. Pre-fabricated flashing elements.

F. Shop Drawings

1. Contract Drawings may be "redlined" for shop drawing submission.
2. Only shop drawings that have been stamped "approved by Contractor" will be accepted for review.
3. Show complete roof layout and orientation of membrane. Show all required flashing layouts and types (roof membrane and air barrier).
4. Show details for elements penetration roofing, including but not limited to pipes, supports, drains, anchors, curbs. Show nailers and blocking required to be furnished for securing work of this Section.
5. Show details for Roof Top Equipment (RTE) supported on the roof membrane.
6. Show complete layout of tapered insulation system. Indicate width, length, slope and composition of tapered insulation system in general and for each drain line. Indicate minimum continuous drain line slope to be achieved; indicate perimeter/penetration flashing condition with vertical rise above finished roofing of less than twelve inches (12").

Submit plan of topographical survey for each roof area showing existing deck slopes, low and high points; survey shall be conducted once temporary roofing has been installed.

7. Securement Against Wind Forces:
 - a. Mechanical/Adhesive Securement. Show dimensions of roof corner, roof perimeter and roof areas including corresponding adhesive and/or anchor placement.
8. Show details at phased construction tie-ins.
9. Show all required fastening types (mechanical anchors, adhesives), spacing, and layout. Indicate compliance with code requirements specified.
10. Show details at construction tie-ins/water cut-off as follows:
 - a. Temporary roofing to final roofing.

G. Application of Manufacturer=s Warranty

1. Contractor shall submit completed Manufacturer's Quality Control Compliance Documentation and application form for warranty.
2. The submittal shall contain all technical information applicable to the project, including deck types, substrate and/or deck slopes, surface preparation/treatment and/or insulation

assemblies (with method of attachment and fastener type). The application for warranty form must bear the acceptance signature of the Material Manufacturer.

H. Warranties

1. Submit copy of warranty of Material Manufacturer and Contractor. Submission shall reflect specified warranty coverage requirements per Item 1.11 of this Section.
2. Written statement of Material Manufacturer and Contractor indicating acceptance of Item 1.11 Warranty of this section is mandatory.

I. Manufacturers'/Contractors' Review

Before commencing work submit written statement signed by the Manufacturer/Contractor stating that the Contract Documents have been reviewed by qualified representatives of the Material Manufacturer/Contractor, and that they are in agreement that the selected materials are proper, compatible and adequate for the application shown, and that the conditions and details are not in conflict with the warranty coverage specified.

Certifications shall be on company letterhead, signed by an officer of each company.

1. Certificates: product certificates signed by manufacturers certifying materials comply with specified performance characteristics and criteria and physical requirements.
2. Substrate Acceptance (temporary and final roofing). Submit a certified statement issued by the Material Manufacturer and countersigned by the Contractor, attesting that areas to receive the work have been inspected and found satisfactory for the reception of this Work, and are not in conflict with the products and warranty coverage specified. Submission shall clearly state extent of substrate acceptance in the event acceptance is granted for less than the entire project. Application of any material will be construed as acceptance of surfaces.
3. Certify that all materials used in the construction of this work meet dimensions/mass and physical/mechanical properties (Manufacturers ACertificate of Analysis@).
4. In-Progress Certifications. Submit written certificate of compliance jointly signed by Contractor and Manufacturer, stating that installation of new roofing (temporary/final) is in accordance with Contract Documents, in accordance with Manufacturer's printed installation instructions, and that substrate materials/conditions have been inspected and found acceptable for the installation of the new/temporary roofing. Certificate shall be on Manufacturer=s letterhead and shall be signed by an officer of the Manufacturer/Contractor.

1.06 FIELD TESTING

Conduct the following testing where required in the scope of work, as part of pre-application testing, and as QC element during the installation:

A. Moisture Content - Concrete/Cementitious Substrata

Determine moisture content of concrete/cementitious substrates in accordance with a method approved by the Material Manufacturer (ref. Section 075210 - Item 1.04.E). Generally acceptable methods are:

1. ASTM F2170-11; ASTM F1869-11;

2. Hygrometer Test;
3. Electrical Resistance Test;
4. Glass Sheet Test;
5. Plastic Sheet Test;
6. Rubber Mat Test.

Testing shall be conducted with a representative of the Material Manufacturer and Consultant present; submit test results with written acceptance of Material Manufacturer.

Note: Structural Lightweight Concrete (SLC) substrates are not acceptable.

B. Pull-Out / Pull-Off Resistance

1. Withdrawal Resistance of Fasteners
 - a. Conduct testing in accordance with ANSI/SPRI FX-1 2001. Perform a minimum of ten (10) test per roof area of up to ea. 50,000 sf ; perform additional five (5) tests for each additional 50,000 sf or portion thereof. Fifty (50%) percent of the tests shall be performed in corner and perimeter areas.
 - b. Submit test values with Material Manufacturer written approval.
2. Uplift Resistance - Adhered Insulation Board Stock/Roof Membrane
 - a. Conduct testing in accordance with ANSI/SPRI 1A-1 2010. Conduct minimum of four (4) tests per roof area of up to 50,000 sf (conduct two (2) additional tests for each additional 50,000 sf or portion thereof), as required for compliance with requirements for mock-up construction, or as indicated on enclosed drawings.
 - b. Submit test values with Material Manufacturer written approval.
3. Adhesion Testing of Unreinforced/Reinforced Coatings:
 - a. Conduct testing in accordance with ASTM D4541 using a portable, hand-operated testing unit.
 - b. Acceptable Testing Unit: ELCO-Meter 106 (Scale 1 or 2).

1.07 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A.** Deliver, store, and handle all materials to prevent damage. Contractor=s crew shall be fully trained/certified in the transport, storage, handling, application, and disposal of materials specified herein or employed by the Contractor during the course of the Work.
- B.** Coordinate storage locations with the Owner or his designated Representative. Materials shall be stored in quantities that do not exceed allowable structural capacity, do not damage substrate materials, hinder installation or impair storm water drainage.
- C.** Materials shall be delivered to site in original tightly-sealed or unopened containers/packages with each container/package bearing label of Manufacturer. All materials shall be labeled as to size, type, physical, performance characteristics and agency approvals.
- D.** Storage and handling of materials shall be strictly in accordance with the requirements/recommendations of the Material Manufacturer, including but not limited to the following:

1. Materials shall be supplied dry and shall be kept dry at all times prior to application. Materials shall be stored in an enclosed, dry storage space. At ambient temperatures of 40°F or lower, store materials indoors at 60°F minimum.
2. Handle all materials to prevent damage. Remove factory plastic-wrap to preclude condensation. Store materials elevated and fully protect from moisture using suitable opaque, reinforced tarps, secured to prevent displacement and exposure of materials. Any materials exposed to water or snow in any way will be rejected and removed from the site
3. Materials indicating moisture content above equilibrium shall be rejected as unacceptable. Ensure adequate ventilation to prevent condensation.
4. Roll goods shall be stored vertically on clean, dry surfaces on platforms. Rolls with damaged ends of flattened rolls shall not be used.
5. Deliver, store, and handle all classified products, such as solvents, resins, etc. in strict accordance with the applicable MSDS data sheet.
6. Deliver, store, handle all materials in accordance with the local building and fire authority based on MSDS information of the respective material Manufacturer.
7. Dispose of all materials in accordance with the provisions/requirements of the respective MSDS data sheet.
8. Unless approved by the Consultant, storage of removed or new materials on the roof shall not be permitted.

1.08 **PROTECTION**

A. General

Protection of facilities shall comply with the provisions of the Contract documents and as specified herein.

B. Building Exterior

Building walls above and below work areas shall be protected to prevent soiling, stains, or spills at all hoisting points or perimeter work locations. Contractor shall be responsible to restore pre-construction conditions.

C. Work Area / Material Storage

1. Provide barricades, retaining ropes, and any appropriate signage required by OSHA and/or the Owner or his designated Representative.
2. Provide and maintain workplace safety per the requirements of OSHA and NIOSH.

D. Odor/Dust Protection

1. Implement protection systems as required to prevent odor and dust penetration to building adjacent areas of roofing/waterproofing construction. Location/extent and duration of protection shall be jointly tested/determined by Owner/Contractor prior to commencement of roofing operations.
2. Odor and dust protection shall include, but not be limited to:

- a. Sealing of air intakes or placement of suitable filters.
- b. Sealing of entrances, windows and other wall openings.
- c. Implementation of work place safety measures in compliance with OSHA/NIOSH, local governing authority, and Owner=s requirements.

E. Against Load

1. Do not store material/equipment on completed work of this section.
2. Where due to work sequence storage of material/equipment on completed sections is required, Contractor shall provide protection suitable in extend and scope to prevent damage (latent and patent) to the roofing (final, temporary) and the structure.

As a minimum, protection shall consist of extruded polystyrene (2"), PE sheathing (0.008"), and exterior grade plywood boards and shall take into consideration the material characteristics of the underlying roof composite. Protection shall be placed over cleaned substrata, secured to prevent displacement by roof activities and wind loads typically experienced at the project site.

3. Areas utilized for storage and related traffic shall be coordinated with the Owner (or his designated representative) and clearly delineated by the Contractor. Areas, upon release from storage and related traffic, shall be re-tested in accordance with the EFVM integrity test protocol defined in this Section.

F. Against Traffic

1. Traffic is not permitted across completed sections of the work except for workmen performing the work.
2. The Contractor shall plan/coordinate installation progress to prevent traffic across completed or partially completed sections. Where traffic, across completed or partially completed sections is necessary, Contractor shall provide protection in accordance with Item 1.08 E2 above.
3. Areas subject to construction and/or related traffic shall be coordinated with the Owner (or his designated representative) and clearly delineated by the Contractor.

G. Rejection of Damaged Work

1. Roofing Contractor, jointly with Owner or his designated Representative and Material Manufacturer's Representative shall investigate completed sections of the work.
2. Damaged roofing components and work will be rejected.
3. Replace damaged roofing components with new brand materials. Replacement will be at Contractor's expense.

1.09 ENVIRONMENTAL CONDITIONS

- A. Application of materials shall not commence nor proceed during, or under the threat of inclement weather.
- B. All surfaces to be joined shall be completely dry and free of condensation, dew, frost, or other forms of moisture.

- C. Prior to and during installation of materials, all dirt, dust, and debris shall be removed from surfaces either by vacuuming, sweeping, blowing with compressed air, or similar methods.
- D. Do not commence with installation of insulation during periods of excessive winds when the safety of personnel may be endangered and/or proper installation may be compromised.
- E. Do not commence with installation of membrane or flashing when air temperature is below 40 ° F or 40 ° F and falling unless approved in writing by the Owner or his designated Representative and Manufacturer of roofing materials.

1.10 **MANUFACTURER'S REPRESENTATIVE**

- A. Manufacturer shall assign a qualified technical representative for the duration of the project.
- B. The technical representative shall perform periodic inspections of the work to assure that application is not in conflict with specified warranty coverage. Required inspection frequency: once per week, or as deemed necessary by the membrane manufacturer.
- C. Observations of the technical representative shall be provided in writing to the Contractor, Owner, or his designated representative, and Consultant.
- D. Costs associated with the Manufacturers' inspections shall be part of Contractors bid.
- E. Manufacturer's Technical Representative: For each system installed and for each building that may be part of the work, provide on-site services of the manufacturer's technical representative (not a sales representative who has at least five (5) years' experience with the manufacturer's products) to:
 - 1. Observe first two (2) days of installation, and
 - 2. Observe two (2) other non-sequential full days of installation selected by the Consultant; and
 - 3. If work of other trades may occur after roofing is installed, review the temporary protective coverings for compliance with manufacturer's recommendations, guidelines for best practices;
 - 4. Inspect completed installations and provide written acceptance for each completed installation; and
 - 5. Review the post completion infrared scan of the completed roof areas and make a written recommendation on the impact (if any) of the results on the Warranty.
 - 6. Inspect the work during the acceptance walk of this project with the Contractor, Installer, Campus, Consultant and the Fund.
 - 7. In addition, after an inspected portion of the system is worked upon in this Contract by other trades or otherwise exposed to damage from the work of other trades, the advisor shall inspect the system again, upon request of the Consultant.
 - 8. All the above inspections shall be performed and completed prior to issuing any Warranty

1.11 **WARRANTY AND MAINTENANCE**

- 1. The Contractor shall guarantee the roof system for 2 years and provide a Manufacturer's 20-year full System Warranty, starting on or after the date of Owner's acceptance of the completed construction work. Guarantee and Warranty shall not be issued until all inspections have been witnessed and signed off by the Consultant. Include all warranty extensions specified in Section 01 78 36 Warranties.
- 2. Contractor's Guarantee

1. The Contractor guarantees that the total roofing installation, together with all related composition flashings, plastic flashings, metal flashings, roof insulation, cover boards, substrate boards, any vapor seal, cants, blocking, adhesives and seals installed in connection with same, will be watertight and free from defects as to materials, installation, and/or workmanship, for a period of two (2) years from the date of acceptance of the completed project. Except as otherwise expressly provided herein, provisions of Section 2.25 of Article II of the Agreement apply to this guarantee.
2. During the 2-year guarantee period, the Contractor agrees that within 24 hours of receipt of notice from the Fund, he will inspect and make immediate emergency repairs to defects or to leaks in roof system, and that within a reasonable time, he will restore the affected items to the standard of the original specifications.
3. All emergency and permanent work during the life of the Contractor's guarantee will be done without cost to the Fund, except in the event it is determined that such leaks were caused by abuse, lightning, hurricane, tornado, hail storm, other unusual climatic phenomena of the elements, or failure of adjacent or related work previously installed by others.
4. Any work completed under the contractor's guarantee period shall be coordinated with roofing system manufacturer warrantee so as not to void manufacturers warrantee.

3. Manufacturer's Warranty

1. In addition to the Contractor's guarantee, the Contractor shall provide the roofing manufacturer's continuous 20-year warranty that the roofing installation will be watertight and free from defects as to materials, installation, and/or workmanship. This warranty shall include vapor barriers, roof insulation, tapered insulation, crickets, substrate boards, cover boards mechanical fasteners, adhesives, roofing plies, mastic, membrane flashings, all metal flashings, wood blocking, cants, and edge strips provided under this Contract. The roofing and insulation shall withstand extended peak gust wind speed coverage up to 90 MPH. This warranty shall be for 20 years for all roofing work, with no requirements for renewal during the 20-year period. Manufacturer shall be required to inspect the roofing system at years 2 (two), 5 (five), ten (ten) and fifteen (15) of the warranty period, and report conditions to the Owner. Such warranty shall 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 in writing prior to that time. The warranty shall not be limited to any dollar value.
2. Four (4) copies of manufacturer's warranty shall be provided to the Fund at the time it accepts completion of the project. The form and content of such warranty shall be in accordance with the foregoing and shall be subject to the approval of the Fund. Prior issuing any warranty,
3. All field inspections must be completed and signed off in writing by the manufacturer's technical representative, and
4. The manufacturer's technical representative must inspect the work during the acceptance walk of this project with the Contractor, Installer, Campus, Consultant and the Fund.

4. Final Payment: Final Payment will not be made until receipt of properly executed and approved Manufacturer's Warranty

1.12 BIDDING REQUIREMENTS

A. Pre-Bid Conference

A Pre-Bid Conference shall be held with a representative of the Owner and all involved trades to discuss all aspects of the project. The Contractor's field representative or roofing foreman for the work shall be in attendance.

PART II - MATERIALS

2.01 MODIFIED BITUMEN ROOF MEMBRANE

A. Manufacturers

Products of the following Manufacturers that retain physical property values listed in Part 2 of this Section will be acceptable for use on the Project when approved (in writing) by Owner or his designated Representative:

1. Siplast, Inc., 1000 E. Rochelle Blvd., Irving, Texas, 75062
2. Johns Manville, 717 17th Street, Denver, CO 80202
3. Soprema, Inc., 310 Quadral Drive, Wadsworth, OH 44281

B. Roof Membrane

1. Roof membrane shall be a 2-ply composite consisting of one (1) ply of smooth prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membranes (base ply) and one (1) ply of aggregate -urfaced prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS block co-polymer modified asphalt membrane (cap ply). Products shall meet/exceed requirements of ASTM D 6162, 6163, 6164. Membranes shall be suitable for torch application, as noted on the drawings and as dictated based on substrate condition. The below-listed modified bitumen membranes are suitable for torch application.

2. Base Ply [Modified Bitumen]. Membrane shall consist of a smooth surfaced prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Product shall meet/exceed to meet/exceed requirements of ASTM D6163 or 6164, Type I, Grade S.

Siplast: "Paradiene 20 TG"
Johns Manville: "DynaWeld Base"
Soprema: "Sopralene Flam 180"

4. Cap Ply [Modified Bitumen]. Membrane shall consist of a mineral-surfaced (reflective) prefabricated, reinforced, styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Product shall meet/exceed the requirements of ASTM D-6163 or 6164, Type I, Grade G.

Color: Super White

Siplast: "Paradiene 30 FR TG BW"
Johns Manville: "DynaWeld Cap FR CR"
Soprema: "Sopralene Flam 180 FR GR" (SG Granule)

- 4.. Cap Ply [Reinforced CFA Membrane]. Polyester (PES) fleece reinforced, cold-fluid-applied (CFA) resin membrane, including all system related accessories supplied by the Material Manufacturer.

Siplast: "Parapro"
Johns Manville: "SeamFree PMMA Liquid Membrane"
Soprema: "Alsan RS 230 Field"

C. Flashing Composite

1. General. Flashing shall be field-constructed of approved membrane, plus stripping ply as shown on enclosed drawings. The below-listed modified bitumen membranes are suitable for torch application. All flashing components shall be provided and approved by the Primary Roof Manufacturer.
2. Flashing Membrane [Modified Bitumen]
 - a. Stripping Ply. Membrane shall consist of a smooth-surfaced prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Product shall meet/exceed requirements of ASTM D6163 or 6134, Type I, Grade S.

Siplast:	“Paradiene 20 TG”
Johns Manville:	“DynaWeld Base”
Soprema:	“Sopralene 180 SP 3.0”
3. Flashing Membrane [Field Fabricated Resin Membrane]. Approved reinforced, cold-fluid-applied (CFA) resin membrane, including all system related accessories supplied by the Material Manufacturer.

Siplast:	“Parapro”
Johns Manville:	“SeamFree PMMA Liquid Membrane”
Soprema:	“Alsan RS 230 Flash”

D. Vapor Barrier Membrane

1. General. Vapor barrier shall consist of approved modified bitumen membrane. Flashing shall be constructed of approved modified bitumen membrane or approved field-constructed, reinforced, cold fluid-applied resin membrane. Membrane products shall be suitable for application using open-flame torching method, as noted on enclosed Drawings or as mandated by substrate composition. The below-listed modified bitumen membranes are suitable for torch application. All flashing components shall be provided and approved by the Primary Roof Manufacturer.
2. Vapor Barrier Membrane

Smooth surfaced prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Product shall meet/exceed requirements of ASTM D6163 or 6164, Type I, Grade S.

Siplast:	“Paradiene 20 TG”
Johns Manville:	“DynaWeld Base”
Soprema:	“Elastophene SP 3.0”
3. Flashing Membrane [Modified Bitumen - Torch-Applied]
 - a. Membrane shall consist of a smooth-surfaced prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Product shall meet/exceed requirements of ASTM D6163 or 6134, Type I, Grade S.

Siplast:	“Paradiene 20 TG”
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Johns Manville: "DynaWeld Base"
Soprema: "Elastophene SP 3.0"

4. Flashing Membrane [Modified Bitumen - Self-Adhered]
 - a. Membrane shall consist of a smooth-surfaced prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Product shall meet/exceed requirements of ASTM D6163 or 6134, Type I, Grade S.

Siplast: "Paradiene 20 SA"
Johns Manville: "DynaGrip Base SD/SA"
Soprema: "Elastophene Stick"

2.02 ROOF DECK INSULATION SYSTEM - POLYISOCYANURATE (PIC)

A. Available Manufacturers

Products of the following Manufacturers that retain physical property values as listed in Part 2.01.B of this Section will be acceptable for use on the Project when approved (in writing) by Owner or his designated Representative:

1. Siplast, Inc., 1000 E. Rochelle Blvd., Irving, Texas, 75062
2. Johns Manville, 717 17th Street, Denver, CO 80202
3. Soprema, Inc., 310 Quadral Drive, Wadsworth, OH 44281

B. Foam Plastic Insulation

1. Insulation shall be homogenous polyisocyanurate foam board with continuous facer of fiberglass mat coated with filled/foamed polymeric coating (high-performance coating), on both surfaces of the insulation board, suitable for adhered (cold, hot) and mechanical attachment and as a suitable substrate for the specified roof membrane. Insulation shall meet/exceed ASTM C1289, Type II, Class 2, Grade 3 (glass fiber facer, 25 psi compressive strength). Insulation shall be used in conjunction with an approved cover board.
2. Insulation shall have a minimum thickness as noted on enclosed Drawings for roof assemblies utilizing insulation composites of individual layers of polyisocyanurate.

3. Fabricated tolerances shall be as follows:

Thickness:	+/- 1/16"
Length/Width:	+/- 1/32"/ft
Squareness:	+/- 1/64"/ft
Max. variation between adjacent boards:	+/- 1/8" all dimensions
Flatness:	+/- 1/16"

4. Roof insulation (base) boards shall have the following dimensions:
48" x 48" (maximum).

2.04 PROTECTION BOARD

Protection board shall be 48" by 48" (max.) for adhesively-secured applications, with the following fabrication tolerances:

Thickness:	+/- 1/16"
Length/Width:	+/- 1/32"/ft
Squareness:	+/- 1/64"/ft
Max. variation between adjacent boards:	+/- 1/8" all dimensions
Flatness:	+/- 1/16"

A. Gypsum-Fiber Protection Board

1. Acceptable Manufacturer

United States Gypsum Company (USG), 550 West Adams Street, Chicago, IL 60661
T: 800-874-4968 / W: www.usg.com

Georgia-Pacific Building Products, 133 Peachtree Street NE, Atlanta GA 30303
T: 800-225-6119 / W: www.buildgp.com

National Gypsum Company, 2001 Rexford Road, Charlotte, North Carolina 28211
Phone: 704-413-7584

2. Material

High-performance gypsum-fiber roof board. Thickness: 2", or as noted on Drawings.

"Securock Gypsum-Fiber Roof Board"

"DensDeck Prime Roof Board"

"DEXcell FA Glass Mat Roof Board", by National Gypsum

2.05 FASTENING ELEMENTS

A. General

1. Fastening elements shall consist of approved cold adhesive(s), and shall be provided by the primary Roof Membrane Manufacturer.
2. Fastening elements shall be approved/tested by Factory Mutual Global as part of Class 1 assembly and specified wind-uplift classification.

B. Roof Insulation Cold Adhesive

1. VOC free low-rise foam insulation adhesive. Minimum acceptable bead width: 3/4".
2. Acceptable Manufacturers:

Royal Adhesives & Sealants, South Bend, IN

Olympic Manufacturing Group, Inc. Agawam, MA

DuPont, Wilmington, DE

2.06 ACCESSORIES

A. Prefabricated Accessories

Supplied by Membrane Manufacturer. Use pre-fabricated accessories where possible to eliminate site fabrication and as required by the Membrane Manufacturer to obtain specified warranty.

B. Membrane Bonding and Sealing Accessories

Bonding adhesive, seam sealant, water cut-off mastic, primers, solvents, temporary sealants and/or other components shall be supplied and approved in writing by the Membrane Manufacturer for use with materials specified herein.

All bonding/sealing accessories shall be in compliance with current VOC regulations.

C. Walkway Membrane

1. Walkway material shall be provided by the Membrane Manufacturer, with surface profile for slip resistance, and approved by the Owner or his designated Representative.
2. Walkway materials shall be heat weldable and/or be attached with heat weldable strips. Adhesive attachment is not acceptable.
3. Walkway width shall be three feet (3'), with individual sections of twelve feet (12') in length (max.). Abut longitudinal sections with a gap of four inches (4") wide.

D. Water Cut-Off Mastic/Sealants

Supplied by the Roof Membrane Manufacturer.

E. Waterproofing/Flashing Membrane Cleaner

Solvent cleaner supplied by the Roof Membrane Manufacturer.

F. Flashing Paste

Supplied by the Roof Membrane Manufacturer.

G. Sand Surfacing / Color Coat

Supplied by the Roof Membrane Manufacturer.

H. Sealant

Sealing materials shall conform to requirements of Section 079010.

2.07 RELATED MATERIALS

A. Wood Nailer

Treated wood nailers shall be installed at the perimeter of the entire roof and around such other roof projections and penetrations as specified on Project Drawings. Thickness of nailers must match the insulation thickness to achieve a smooth transition. Wood nailers shall be treated for rot resistance (wolmanized or osmose treated) and be #2 quality or better lumber. Creosote or asphalt-treated wood is not acceptable. All wood shall have a maximum moisture content of 19% by weight on a dry-weight basis.

B. Plywood

When bonding directly to plywood, a minimum 2" CDX (C side out), smooth-surfaced exterior grade plywood with exterior grade glue shall be used. Rough-surfaced plywood or high-fastener heads will require the use of approved felt behind the flashing membrane. Plywood shall have a maximum moisture content of 19% by weight on a dry weight basis.

2.08 REJECTED MATERIALS

The Owner or his designated Representative shall have the right to inspect all materials brought to or stored at the job site. Those materials which do not comply with the above requirements shall be removed from the Owner's premises by the Contractor within two (2) hours of verbal notification, which will be followed by written confirmation.

PART III - EXECUTION

3.01 PRE-INSTALLATION MEETING

A. Prior to the start of the Work, and at the Contractor=s direction, meet at the Project site to review methods and sequence of installation, special details and conditions, standard of workmanship, testing and quality control requirements, job organization and other pertinent topics related to the Work.

The meeting shall include the Structural Engineer, Project Architect, Roofing Consultant, Contractor=s Project Superintendent, Material Manufacturer=s representative, the Campus, Fund Coordinator inspection and testing services (if any) and any other subcontractors whose work requires coordination with this work.

B. Coordinate work of this Section with the work of other trades. Do not commence with any work of this Section, unless the work, or portions thereof, has been cleared for application.

3.02 CONDITION OF SURFACES

A. Contractor shall verify that the work required/completed under this or related sections meets the following conditions:

1. Vents, drains, cants, blocking and other projections through the deck have been positioned, secured and/or supported.
2. All surfaces are smooth and free of dirt, debris and incompatible materials.
3. All surfaces are free of ice, water and snow.
4. Roof deck repairs/replacement have been completed and accepted by Owner=s Structural Engineer or his designated Representative.

3.03 PREPARATION OF SUBSTRATE

A. General

1. The roof deck (included existing roof construction where retained) must be structurally sound to provide support for the new roof system. The Owner or his designated Representative shall ensure that the roof deck is secured to the structural framing according to local building code, resist all anticipated wind loads, and support new roof system loads.
2. Clean/prepare substrate materials and surfaces in strict accordance with the requirements of the Material Manufacturer. Any substrate to receive new or temporary roofing (including flashing), shall be clean, dry, free of loose, spalled or weak materials, free of corrosion, oil, grease, contaminants, including but not limited to adhesives, water stops, water cut-off, abrupt changes in level, and free of

surface roughness in excess of acceptable profile and/or projections which could affect the installation and/or damage the roofing.
3. Where preparation of substrate materials requires the use of power driven or actuated tools, observe applicable use instructions and safety requirements.
4. Before installation of any roofing materials (temporary roofing and final roofing), the Material Manufacturer shall inspect substrate and issue written acceptance. Any corrections shall be implemented prior to the commencement of the Work.
5. Application of any component of the Work by the Contractor shall indicate suitable and acceptable surfaces in accordance with the Contract Documents.

B. Structural Concrete Deck

1. New concrete shall be cured as recommended by the concrete/mortar manufacturer to obtain a minimum hardness of 3,500 psi (25N/mm²) with a maximum moisture content as stated under Item 3.03-B.3.

Note: Structural Lightweight Concrete (SLC) is not an acceptable substrate.

Repairs of existing concrete shall be performed using a single-component, rapid-curing, early-strength cementitious patching compound. Patching compound shall be cured/protected as recommended by the Material Manufacturer. Patching compound shall exhibit a maximum moisture content as stated under Item 3.03-B.3 following a cure period of 5 days maximum.

2. New or existing concrete shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, lantence, friable matter, dirt, bituminous products and previous waterproofing materials. De-grease concrete, where required, via detergent washing in accordance with ASTM D-4258 or through use of de-greasing agent approved or recommended by the Material Manufacturer.
3. New or existing concrete shall be dry with a maximum moisture content of 5% and 75% relative humidity. Determinations as to moisture content shall be performed by the Contractor using equipment approved by the Material Manufacturer (ref. Item 1.06 A). Contractor shall be responsible to perform periodic evaluations as to substrate moisture content during the work. Moisture evaluation results shall be submitted, in writing to the Material Manufacturer, for acceptance.

Where the substrate moisture content exceeds acceptable levels, or where moisture migration to the area below the membrane application cannot be positively eliminated, Contractor may utilize an approved moisture mitigating primer (MMP) in lieu of the approved primer. The use of the primer shall be contingent on successful pre-application testing and written approval by the Material Manufacturer.

4. Concrete shall be abrasively cleaned in accordance with ASTM D4259 / ICRI to provide a sound substrate free from laitance and with an open concrete surface. Assume surface profile ranging from CSP 3 to 5 based on accepted mock-up.
5. The entire substrate shall be sounded and inspected. All spalls, voids, blow holes, and other deterioration or depressions shall be repaired in accordance with the requirements of the Material Manufacturer.

Route cracks and repair in accordance with the requirements of the Material Manufacturer. Crack with an average width of 1/4" or larger shall be treated with a bond-breaker tape, following routing and filling with approved flashing paste.

6. Areas of surface deterioration, in excess of surface profile stated above, shall be corrected to prevent possible ponding of components of the system, leading to excessive usage of primer and resin, reduced adhesion, and/or blisters. Substrate repair shall be conducted with approved leveling compound. Extent and location of thin surface patching shall require approval of the Owner or his designated Representative prior to the application of any system component.

C. Steel/Metal Substrata

1. General
 - a. Steel and Metal substrata shall be prepared to provide a clean and open surface.
 - b. Cleaning/preparation shall extend vertically a minimum of three (3") inches past the projected flashing termination line. Protect substrata from corrosion or soiling; re-clean/prepare immediately prior to flashing application.
2. Ferrous Metal. Clean and prepare ferrous metal surfaces in accordance with SSPC-SP3 (power tool clean) as a minimum; or as required by the Material Manufacturer
3. Galvanized Steel. Remove galvanizing to expose underlying steel base; proceed per Item C.2 above. For galvanized steel also ref Section 051200.
4. Aluminum/Noble Metals (LCC, CRC, SS). Clean and prepare metals to provide an open surface.

3.04 PRE-APPLICATION TESTING/MOCK-UP CONSTRUCTION

Conduct all pre-application testing identified in this Section and/or as required by the Material Manufacturer.

Construct mock-ups per Section 075210, Item 1.05 E; schedule inspections once shop drawings have been reviewed and returned with notations Approved@ or Approved as noted@.

General construction shall not commence unless pre-application testing and mock-up construction has been approved following inspection by Waterproofing Consultant/Material Manufacturer.

3.05 VAPOR BARRIER

- A. Install vapor barrier in accordance with enclosed Drawings, over roof deck that has been inspected and accepted by the Material Manufacturer. Verify that all required deck repairs have been completed.
- B. Provide/install vapor barrier throughout the course of the project, as directed by the Owner (or his designated Representative), to accommodate deck repair/replacement, to safe-off new or existing roof top equipment modifications/replacement, to protect temporary and final roofing from water intrusion and as necessary to maintain watertight conditions.
- C. Remove/discard temporary flashing as directed, as shown on enclosed drawings and to prevent interference with flashing systems of the final roof system.

3.06 APPLICATION - ROOF DECK INSULATION

- A. Do not install more insulation that can be completely covered and made watertight with membrane and flashing the same day.
- B. Roof deck insulation shall consist of approved base insulation/re-cover board, or as shown on enclosed drawings. All elements of the roof deck insulation shall be installed in strict accordance with the requirements and recommendations of the Material Manufacturer(s).
- C. Base insulation in excess of 2" thickness, shall be installed in multiple layers with each layer staggered to preclude the formation of vertical joints that project from substrate to top of roof deck insulation. At lines of work stoppage, maintain board stagger. Protect insulation units at leading edge from damage/deformation.
- D. Re-cover boards, where specified and/or shown on enclosed Drawings, shall be placed over base insulation. Double stagger joints of the overlay board over the top layer of the base insulation.
- E. All elements of the thermal roof deck insulation system shall be secured as indicated on enclosed Drawings to meet specified roof system securement rating.
 - 1. Adhesive Attachment
 - a. Adhesives shall not be intermingled.
 - b. Prepare and clean substrate(s) in strict accordance with the requirements of the Material Manufacturer. Verify that temperature/humidity and moisture content of substrate(s) will not interfere with the application of the roof materials, and will not affect the performance and intended function of the roof.
 - c. Apply adhesives in strict accordance with the application protocol required and/or recommended by the Material Manufacturer to obtain continuous attachment. Adhesives shall be applied in beads with a minimum width of 3/4".
 - d. Apply adhesives to prevent contamination of the top surface of the insulation and/or recover board being secured.

3.08 TEMPORARY WATER CUT-OFF CONSTRUCTION

- A. Construct functional water cut-offs at the end of each work day. Water cut-offs shall be constructed

- for both temporary and final roof systems.
- B. Water cut-offs shall be of sufficient quality and durability to withstand protracted periods of inclement weather and to preclude water intrusion into the building interior and/or the temporary/final roof system. Contractor shall assume a minimum performance horizon of six (6) months.
 - C. Water cut-offs shall not hinder, preclude or interfere with storm water drainage.
 - D. Water cut-offs shall be constructed to preclude interference with any component of the temporary/final roofing and permit removal without damage to the temporary/final roofing
 - E. Fully remove water cut-offs upon resumption of the Work.

3.09 INSTALLATION OF ROOF MEMBRANE

A. General

1. Membrane Application. Apply waterproofing membrane in accordance with the requirements and recommendations of the Material Manufacturer and the following requirements.
2. Installation of membrane shall be accomplished in such a way that each area will be complete at the end of each day of work. All membrane edges and flashing shall be protected against water entry at all times in accordance with the Membrane Manufacturer's printed instructions. Cut-offs and temporary protection shall be completely removed prior to resumption of work.
3. Phased application of membrane is not acceptable unless approved in writing by the Material Manufacturer. In the event phasing is permissible, clean and prepare base sheet in accordance with the Membrane Manufacturer's printed instructions prior to application of cap sheet.
4. Protect all areas where membrane has been installed (ref. Section 075210), Item 1.7. Do not work off installed membrane during application of remaining plies. Movement of materials and equipment across installed membrane is not acceptable. If movement is necessary, provide complete protection of affected areas.
5. Open-Flame Torch Application
 - a. Only use equipment which is approved and recommended by Industry Organizations and the Material Manufacturer. Strictly follow safety and operating instructions provided by the Manufacturer of the torch system. Heat membrane consistently to temperatures recommended by the Material Manufacturer.
 - b. Contractor shall thoroughly train all personnel anticipated to use open-flame torching equipment prior to starting application. Follow use and application guidelines for open-flame torching such as ACertified Roofing Applicator (CERTA)® by MRCA or approved equivalent.
 - c. Conduct fire prevention inspections during the membrane/flashing torching operations. Refer 01 51 16 - Temporary Fire Protection and 01 35 23 - Safety and Protective Facilities. Maintain fire watch log and submit as part of close-out

documents.

- d. Do not allow torching devices to come in contact with flammable materials. Inspect substrate surfaces, walls, abutments and all surrounding surfaces prior to use of torching device so that necessary precautionary measures can be implemented. Use caution when working around roof top equipment, supply lines or mechanical equipment which may have electrical and/or fuel connections.
- e. Keep torch flame moving at all times, failure to do so may result in ignition of surface and/or underlying materials.
- f. Avoid prolonged contact with heat sensitive materials, as overheating of these materials could ignite underlying flammable materials.
- g. DO NOT use propane except in well ventilated areas.
- h. Check all fittings and other equipment on the application equipment for leakage. Never use a flame to check fittings and other equipment.
- i. Propane tanks are pressurized. Do not puncture. Do not expose to excessive heat. Maintain tanks at a minimum safe distance away from the torch flame.
- j. Containers which contain or may have contained flammable material must be kept clear from torch or other heat source.
- k. Never place a hot torching device on the roof surface, insulation or any other surface or object other than an acceptable stand or holder or fireproof surface. Never leave a lighted torch unattended. Allow torching device to cool completely to room temperature before removing it from roof.
- l. Never use a torching device to apply any material other than modified bitumen membrane specifically formulated for torching application.
- m. Provide and maintain a minimum of two (2) code approved fire extinguishers in the immediate work area.

B. Priming

- 1. Modified Bitumen Membrane. Prime concrete/cementitious substrata, metal flanges, concrete, and masonry surfaces with a uniform coating of approved primer following substrate cleaning and preparation. Limit exposure of primer to the elements to a maximum of 12 hours after application.
- 2. Reinforced, Cold Fluid-Applied Resin (CFA). Prime all substrate material as required by the Material Manufacturer, following substrate cleaning and preparation. Do not over expose primer; re-active primer as required by the Material Manufacturer.

C. Roof Membrane Composite

Apply all layers of membrane free of wrinkles, creases or fish mouths. Exert sufficient pressure on the roll during application to prevent air pockets. Lap seams (end and side laps) in the base ply shall not coincide with the lap seams of the cap ply. Stagger all plies to eliminate stacked membrane lap seam.

1. Apply all membrane plies perpendicular to slope of deck; arrange side laps with the flow of water.
2. Fully torch or adhesive bond approved base ply to the prepared and primed substrate, approved temporary roofing and/or approved mechanically secured base felt; provide a minimum of three (3) inch side and end laps. Treat T-joints at intersection of end/side laps as shown on enclosed Drawings. Using a clean trowel, apply top pressure to top seal T-laps immediately following sheet application.
3. Fully torch bond approved cap ply to cleaned base ply.

D. Flashing Application

Provide system with base flashing, penetration flashing, counter flashing, and all other flashing required and necessary for a complete watertight system. Flashing shall be constructed in accordance with the requirements and recommendations of the Material Manufacturer, as shown on enclosed Drawings, and the following requirements.

It is the intent of this specification that all penetrations through the roofing system, either horizontally or vertically, are to be flashed per enclosed Drawings, or in the absence of specific drawings per the requirements of the Material Manufacturer. Where flashing is identified to be constructed per verification in the field and/or approved mock-up construction, Contractor=s bid shall include labor, materials, accessories and equipment required to construct flashing, which as a minimum, meet the general intent of the Contract Documents for a 25-year roofing system and shall satisfy the warranty provisions specified.

1. Modified Bitumen Membrane Flashing
 - a. Perimeter and curb flashing shall consist of a composite of approved reinforcing membrane and flashing membrane. Reinforcing membrane and flashing membrane shall be applied with three (3") inch side laps; side laps shall be staggered by twelve (12") inches minimum. DO NOT stack end laps. Flashing shall extend vertically a minimum of eight (8") inches and a maximum of twenty-four (24") inches above finished roof membrane. Follow Material Manufacturer=s direction for flashing exceeding 24" vertically.
 - b. All flashing shall be mechanically fastened or otherwise retained to prevent any form of excessive movement. DO NOT stretch membrane during application. Prevent direct contact of dissimilar metals.
 - c. Flanges of metal flashing shall have a minimum width of four (4") inches; both sides of the flanges shall received application of approved primer. Strip flanges with approved modified bitumen membrane, less not than four (4") inch in width.
 - d. Set flanges of metal flashing components in thin, continuous bed of approved flashing cement and secure per enclosed drawings. Fasteners shall be placed staggered to obtain flange lay-flat and to preclude distortion during exposure to thermal gradients. Seal leading edge of membrane flashing with approved sealants, at terminations over metal flanges and where shown on enclosed Drawings.
2. Reinforced Cold Fluid-Applied Resin Membrane Flashing (CFA Flashing)
 - a. Apply CFA flashing at locations indicated on enclosed Drawings, and in strict

accordance with the requirements of the Material Manufacturer.

- b. CFA flashing shall be connected to primary waterproofing by way of approved mineral surfaced modified bitumen membrane target sheet or other means approved by the Material manufacturer; ply configuration shall conform to enclosed Drawings, or written approval of the respective Material Manufacturers.

Prepare, clean and prime approved substrate per the requirements of the Material Manufacturers; apply approved primer immediately after preparation/cleaning is complete.

- c. Roof penetrations with a diameter of less than four (4") inches, shall receive a flashing pocket (filled solid with concrete - sloped to drain), secured to approved treated wood blocking attached to the roof deck.

CFA membrane flashing shall fully encapsulate flashing pocket with horizontal extension terminated over an approved modified bitumen target sheet or roof membrane prepared i/a/w the requirements of the Material Manufacturer. .

- d. Flanges of metal flashing as well as other joints constructed of dissimilar materials, shall receive a separate stripping ply of approved modified bitumen membrane; metal flange width shall be not less than four (4") inches.
- e. Fill gaps, openings, transitions, interstitial spaces, etc with approved reinforced flashing paste; apply 4" min stripping ply where required by the Material Manufacturer.
- f. Surface CFA flashing with approved mineral aggregate broad-cast into approved embedment coat; apply surfacing in strict accordance with the requirements of the Material Manufacturer to obtain a continuous and uniform aggregate layer. Remove all loose aggregate following resin cure and apply approved sealer.
- g. CFA membrane flashing surfaced with a cementitious compound, or exposed in general to an alkaline environment, shall receive a supplemental coating of resin or alkaline resistant surfacing.
- h. Metal/steel substrata shall be cleaned a minimum of four (4") inches vertically above the termination of the flashing membrane, and receive a coat of approved corrosion primer/finish paint.

E. Localized, Shallow Water Ponding

1. Evaluate storm water drainage after placement of temporary roofing.
2. Identify areas of localized water ponding with a depth of more than 1/8"; submit roof plan depicting location, size and depth of water pond(s).
3. Eliminate water ponds via supplemental application of MB base ply sections prior to placement of MB cap ply.

3.10 PROTECTION

The Contractor shall fully protect new roof system (temporary and final) from all trades during roof construction and after completion. Any damage to the system shall be repaired prior to quality control

inspection.

3.11 CLEAN-UP

The Roofing Contractor shall remove all masking, protection, equipment, materials, and debris from the work and storage areas and leave those areas in an undamaged and acceptable condition.

3.12 MANUFACTURER'S INSPECTIONS

A. Manufacturer=s representative shall conduct inspection as noted under Section 075210 - Item 1.09. The Contractor shall arrange for these inspections and notify the Owner or his designated Representative each time the Membrane Manufacturer's Representative is present at the job site.

These inspections shall be in addition to any inspections which may be made by an employee or representative of the Owner or his designated Representative. Written reports of the Membrane Manufacturer's inspections shall be made, with copies to the Owner or his designated Representative and to the Contractor.

B. Contractor/Membrane Manufacturer shall schedule inspections at such times to determine that:

1. Deck surfaces are acceptable to receive temporary roofing.
2. Wall/penetration surfaces are acceptable to receive temporary roofing/flashing
3. Temporary roofing/flashing is acceptable for application of thermal roof deck insulation system.
4. Thermal roof deck insulation system is applied in accordance with specified requirements and meets Material Manufacturers requirements for application of final roofing.
5. Flashing substrate surfaces are acceptable and prepared in accordance with specified requirements and meet Material Manufacturers requirements.
6. Roof membrane/flashing membrane applied in accordance with specified requirements and meets Material Manufacturers requirements for warranty coverage.
7. Materials, equipment, and application methods are in accordance with the Manufacturer's recommendations.
8. Completed work is in accordance with Contract Documents and qualifies for warranty coverage as specified.

3.13 FIELD QUALITY CONTROL

A. Testing for conformance with requirements of Contract Documents may be employed by the Owner or his designated Representative.

B. Testing Procedures

1. Check substrate for moisture and physical condition to determine suitability to receive materials.
2. Determine moisture content of materials.

3. Determine adhesion of roof membrane/flashing membrane to substrate.
4. Monitor temperature of substrate materials.
5. Monitor quantities of installed materials. Monitor application of insulation, membrane, and flashing.
6. Test membrane for specified physical properties.

C. Pre-Final Inspections

1. Contractor shall schedule inspections at the completion of each roofing phase/area. Meetings shall be attended by: (1) Roofing contractor; (2) Construction Manager; (3) Material Manufacturers; (4) Roof Consultant; (5) Architect.
2. The following roofing phase are applicable: (1) temporary roofing; (2) final roofing up to and inclusive roof membrane base sheet; (3) final roofing up to and inclusive cap sheet.
3. Each phase shall be inspected.

3.14 WORKMANSHIP

Work of this Section that does not conform to specified requirements shall be corrected and/or replaced as directed by the Owner or his designated Representative, at Contractor's expense, without extension of time. Contractor shall also be responsible for cost of corrections to any work affected by or resulting from corrections to work of this Section.

END OF SECTION

SECTION 076200 - SHEET METAL WORK

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the sheet metal work as indicated on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Stainless steel cap metal flashing.
 - 2. Field fabricating (including bending, cutting, soldering, etc.), if required, of stainless steel flashing.
 - 3. Stainless steel flashing elsewhere, where metal flashing is indicated on drawings.
 - 4. Separation of contacting surfaces of dissimilar metals.

1.3 RELATED SECTIONS

- A. Roofing - Division 7.

1.4 SUBMITTALS

- A. Shop Drawings: Submit, showing all materials, finishes, fastenings, joint details, fabrication, construction and relation to adjoining construction.
- B. Samples: Submit 12" x 12" samples of flashing materials and finishes.

1.5 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation, and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary at no additional cost to the Owner.

1.6 WARRANTY

- A. The Contractor shall warrant that all Metal Flashing Work executed under this Section will be free from defects in materials and workmanship for a period of ten (10) years from date of acceptance of the Project, and he shall remedy any defects in the Metal Flashing Work.

PART 2 PRODUCTS

2.1 MATERIALS

A. Stainless Steel Flashing Materials

1. Stainless Steel Flashing: ASTM A 240, Type 316, stainless steel, with 2D finish, dead soft temper, fully annealed, as manufactured by International Nickel Co., Republic Steel Corp., United States Steel, or Washington Steel Corp. Thickness of stainless steel shall be as listed below.
 - a. Concealed Flashings: 0.012" thick, thirty (30) gauge (U.S. Standard).
 - b. Exposed Flashings: 0.015" thick, twenty-eight (28) gauge (U.S. Standard).
 - c. Edge Strips: 0.025" thick, twenty-four (24) gauge (U.S. Standard).
2. Accessories and Fastenings: AISI, Types 302 and 304 stainless steel.
3. Solder: Composed of sixty (60) percent block tin and forty (40) percent pig lead, except that solder at seams exposed to public view shall be eighty (80) percent tin and twenty (20) percent lead.
4. Flux: An acid type flux manufactured specifically for soldering stainless steel, as approved.

- #### B. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type non-corrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

PART 3 EXECUTION

3.1 INSPECTION

- #### A. Examine the areas and conditions where sheet metal work is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 METAL FLASHING INSTALLATION

- #### A. Reference Standard: Conform to the requirements of 7th Edition of the Sheet Metal and Air Conditioning Contractors Association (SMACNA) Architectural Sheet Metal Manual.
- #### B. General: Fabricate and install metal flashing work in accordance with details and specifications of above Reference Standard, with manufacturer's instructions, and as herein specified, to provide a watertight installation. Apply metal flashing to smooth, even, sound, clean, dry surfaces free from defects. Make provisions to allow for expansion and contraction of metal flashing work. Wherever practicable, shop form all metal flashing work and deliver ready for installation. Form metal flashing work accurately to required profiles, with flat surfaces, straight edges and corners, free from defects. Fold exposed metal edges back not less than 1/2" and form drip.
- #### C. Nailing: Confine to sheets twelve (12) inches or less in width. Confine nailing to one edge only, locate nails where concealed. Use No. 12 x 1" long flat headed, annular

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threaded, Type 302 stainless steel nails for nailing to wood blocking; use one (1) inch long masonry nails for nailing to concrete. Space nails four (4) inches o.c. maximum.

- D. Cleating: Use cleats where sheets are more than twelve (12) inches in width. Space cleats approximately twelve (12) inches o.c. Cleats two (2) inches wide by three (3) inches long, of the same material and weight as the metal flashing being installed. Secure one end of the cleat with two (2) nails and fold edge back over the nail heads. Lock other end into seam or into folded edge of metal flashing sheets. Pre-tin cleats for soldered seams.
- E. Joining: Join metal flashings with one (1) inch locked and soldered seams except at slip joints. Mallet seams flat and solder full length of seam as specified below.
- F. Soldering: Clean and pre-tin edges of metal flashing to be soldered before soldering is begun with solder on both sides for a width of not less than 1-1/2". Solder slowly with well heated metal surfaces. Use ample solder. Show not less than one full inch of evenly flowed solder on seam. Seams shall have a liberal amount of flux brushed in before soldering is commenced. Where soldering paste or killed acid is employed as a flux, soldering shall follow immediately after application of the flux. Upon completion of soldering, clean surfaces of all flux.
- G. Slip Joints: Locate slip joints not more than twenty-four (24) feet apart and not more than eight (8) feet from corners. Form slip joints as three (3) inch wide joints with cover piece behind flashing and fill locked ends neatly with sealant.
- H. Cap Flashing: Install over base flashings, in eight (8) to ten (10) foot lengths, lapped six (6) inches at ends. Cap flashing shall be increased longitudinally to produce spring action to hold bottom edge of cap flashing firmly against base flashing. Cap flashing shall lap base flashing at least four (4) inches, with exposed bottom edge at a forty-five (45) degree angle downward and folded back on underside at least 1/2" to form drip. Make cap flashing continuous at corners and angles.
- I. Miscellaneous Flashing: Provide all other miscellaneous metal flashing not specifically mentioned herein but indicated on drawings and/or required to provide a watertight installation.
- J. Separation of Dissimilar Materials: Back paint surfaces of metal flashing in contact with dissimilar metals or with concrete or masonry with bituminous paint.

END OF SECTION

SECTION 077100 ROOF SPECIALTIES AND ACCESSORIES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the roof specialties and accessories as shown on the drawings and/or specified herein, including but not necessarily limited to the following:

- 1. Aluminum copings.

1.3 RELATED SECTIONS

- A. Roofing - Section 075216.
- B. Sheet metal flashing - Section 076200.

1.4 SUBMITTALS

- A. Before any roof specialties and accessories are delivered to the job site, submit shop drawings showing profiles and anchoring devices.

1.5 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

PART 2 PRODUCTS

2.1 ALUMINUM COPINGS

- A. Fabricate of .063" thick aluminum alloy 5005-H154, smooth, no pattern.
- B. Provide concealed splice plates 12'-0" o.c. fabricated of .050" thick aluminum to match exposed aluminum; finished to match exposed aluminum.
- C. Provide pre-fabricated mitered and welded corner units.
- D. For copings, provide galvanized steel anchor plates, anchors spaced 6'-0" o.c. and snap-lock coping design; all anchors concealed.
- E. High-Performance Organic Finish: AA-C12C42R1x (Chemical Finish: Cleaned with inhibited chemicals; Chemical Finish: Acid-chromate-fluoride-phosphate conversion

coating; Organic Coating: As specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's written instructions.

1. Fluoropolymer Two-Coat System: Manufacturer's standard two-coat, thermo-cured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2605-02.
 2. Custom color and gloss as selected by the Architect.
- F. Provide units manufactured by OMG Roofing, or equal made by Cheney, Johns Manville or approved equal.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where roof specialties and accessories are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. General: Comply with manufacturer's instructions and recommendations. Coordinate with installation of roof deck and other substrates to receive accessory units, and with roof insulation, roofing and flashing; as required to ensure that each element of the work performs properly, and that combined elements are waterproof and weathertight. Anchor units securely to supporting structural substrates, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures.
- B. Isolation: Where metal surfaces of units are to be installed in contact with non-compatible metal or corrosive substrates, including wood, apply bituminous coating on concealed metal surfaces, or provide other permanent separation.
- C. Cap Flashing: Where cap flashing is required as component of accessory, install to provide adequate waterproof overlap with roofing or roof flashing (as counter flashing). Seal with thick bead of mastic sealant, except where overlap is indicated to be left open for ventilation.

3.3 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces in accordance with manufacturer's instructions. Touch up damaged metal coatings.

END OF SECTION

SECTION 078413 - FIRESTOPS AND SMOKESEALS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the firestops and smoke seals as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Penetrations through fire-resistance-rated floor and roof construction including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
 - 2. Penetrations through fire-resistance-rated walls and partitions including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
 - 3. Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.
 - 4. Sealant joints in fire-resistance-rated construction.

1.3 REFERENCES

- A. ASTM E 814 "Standard Method of Fire Tests of Through-Penetration Firestops."
- B. UL 1479, UBC 7-5 (Both are same as A. above).
- C. ASTM E 136 "Standard Test Method for Assessing Combustibility of Materials."
- D. UL 263, UBC 7-1 "Fire Tests of Building Construction and Materials"
- E. UL 2079 "Tests For Fire Resistance of Building Joint Systems."
- F. ASTM E 1399 "Test For Dynamic Movement Conditions."
- G. ASTM E 1966 (Same as E. above).
- H. ASTM G 21 "Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi."
- I. Test Requirements: ASTM E 2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-story Test Apparatus."

- J. Inspection Requirements: ASTM E 2174, "Standard Practice for On-site Inspection of Installed Firestops."
- K. Published Through-Penetration Systems by recognized independent testing agencies.
 - 1. UL Fire Resistance Directory, Volume II of current year.
 - 2. Warnock Hersey Certification Listings, current year.
 - 3. Omega Point Laboratories, current year.
- L. International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments.

1.4 SUBMITTALS

- A. Submit manufacturer's product literature for each type of firestop material to be installed. Literature shall indicate product characteristics, typical uses, performance, limitation criteria, test data and indication that products comply with specified requirements.
- B. Submit shop drawings detailing materials, installation methods, and relationships to adjoining construction for each firestop system, and each kind of construction condition penetrated and kind of penetrating item. Include firestop design designation of qualified testing and inspection agency evidencing compliance with requirements for each condition indicated.
 - 1. Submit documentation, including illustrations, for proposed UL listed (or equal) firestop and smoke seal assembly required for the Project.
- C. Material Safety Data Sheets: Submit MSDS for each firestop product.
- D. Submit qualifications of firestop installer, including letter from firestop manufacturer of products proposed to be installed, wherein manufacturer approves or recognizes as trained/ or certifies installer for installation of that manufacturer's products.
- E. Engineering Judgment: For those firestop applications that exist for which no qualified tested system is available through a manufacturer, an engineering judgment derived from similar qualified tested system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineering judgment documents must follow requirements set forth by the International Firestop Council.

1.5 QUALITY ASSURANCE

- A. General: Provide firestopping systems that are produced and installed to resist the spread of fire and the passage of smoke and other gases.
- B. Installation Responsibility: Assign installation of through-penetration firestop systems and fire-resistive joint systems in Project to a single sole source firestop specialty contractor.
- C. Firestopping materials shall conform to Flame (F) and Temperature (T) ratings as required by local building code and as tested by nationally accepted test agencies per ASTM E 814 or UL 1479. The F-rating must be a minimum of one (1) hour, but not less than the fire resistance rating of the assembly being penetrated. T-rating, when

required by code authority, shall be based on measurement of the temperature rise on the penetrating item(s). The fire test shall be conducted with a minimum positive pressure differential of 0.01 inches of water column.

1. Penetrations in Horizontal Assemblies: Provide firestopping with ratings determined in accordance with UL 1479 or ASTM E 814.
 - a. F-Rating: Minimum of 1-hour rating, but not less than the fire-resistance rating of the floor construction being penetrated.
 - b. T-Rating: When penetrant is located outside of a wall cavity, minimum of 1-hour rating, but not less than the fire-resistance rating of the floor construction being penetrated.
 - c. W-Rating: Class 1 rating in accordance with water leakage test per UL 1479.
 2. Penetrations in Smoke Barriers: Provide firestopping with ratings determined in accordance with UL 1479 or ASTM E 814.
 - a. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at both ambient and elevated temperatures.
- D. Firestopping products shall be asbestos free and free of any PCBs.
- E. Do not use any product containing solvents or that requires hazardous waste disposal.
- F. Do not use firestop products which after curing, dissolve in water.
- G. Do not use firestop products that contain ceramic fibers.
- H. Firestopping Installer Qualifications: Firestop application shall be performed by a single firestopping contractor who specializes in the installation of firestop systems, whose personnel to be utilized have received specific training and certification or approval from the proposed respective firestop manufacturer, and firestop installer shall have a minimum of three years' experience (under present company name) installing firestop systems of the type herein specified.
- I. Mock-Up: Prepare job site mock-ups of each typical Firestop System proposed for use in the project. Approved mock-ups will be left in place as part of the finished project and will constitute the quality standard for the remaining work.
- J. For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.
 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
 2. For floor penetrations with annular spaces exceeding 4 inches or more in width and exposed to possible loading and traffic, provide firestop systems capable of supporting the floor loads involved either by installing floor plates or by other means.
 3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
- K. Mold Resistance: Provide penetration firestopping with mold and mildew resistance rating of less than or equal to 1 as determined by ASTM G 21.

- L. Firestopping Materials are either "cast-in-place" (integral with concrete placement) or "post-installed." Provide cast-in-place firestop devices prior to concrete placement.
- M. Firestop systems do not reestablish the structural integrity of load bearing partitions or assemblies, or support live loads and traffic. Installer shall consult the Structural Engineer prior to penetrating any load bearing assembly.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's original unopened containers with manufacturer's name, product identification, lot numbers, UL or Warnock Hersey labels, and mixing and installation instructions, as applicable.
- B. Store materials in the original, unopened containers or packages, and under conditions recommended by manufacturer.
- C. All firestop materials shall be installed prior to expiration of shelf life.

1.7 PROJECT CONDITIONS

- A. Verify existing conditions and substrates before starting work
- B. Do not use materials that contain solvents, show sign of damage or are beyond their shelf life.
- C. During installation, provide masking and drop cloths as needed to prevent firestopping products from contaminating any adjacent surfaces.
- D. Conform to ventilation requirements if required by manufacturer's installation instructions or Material Safety Data Sheet.
- E. Weather Conditions: Do not proceed with installation of firestop products when temperatures are in excess or below the manufacturer's recommendations.
- F. Schedule installation of firestop products after completion of penetrating item installation but prior to covering or concealing of openings.
- G. Coordinate this work as required with work of other trades.

1.8 SEQUENCING AND SCHEDULING

- A. Pre-Installation Conference: Convene a pre-installation conference to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.
- B. Sequence: Perform work of this and other sections in proper sequence to prevent damage to the firestop systems and to ensure that their installation will occur prior to enclosing or concealing work.
- C. Install all firestop systems after voids and joints are prepared sufficiently to accept the applicable firestop system.
- D. Do not cover firestop systems until they have been properly inspected and accepted by the authority having jurisdiction.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide products of one of the following manufacturers:
1. Hilti, Inc.
 2. Metacaulk.
 3. Nelson.
 4. Specified Technologies Inc.
 5. 3M.
 6. Tremco.
 7. U.S. Gypsum Co.

2.2 FIRESTOPPING, GENERAL

- A. Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.
- B. Accessories: Provide components for each firestopping system that are needed to install fill materials. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire-resistance-rated systems. Accessories include but are not limited to the following items:
1. Permanent forming/damming/backing materials including the following:
 - a. Semirefractory fiber (mineral wool) insulation.
 - b. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.
 - c. Fire-rated form board.
 - d. Joint fillers for joint sealants.
 2. Temporary forming materials.
 3. Substrate primers.
 4. Collars.
 5. Steel sleeves.
- C. Applications: Provide firestopping systems composed of materials specified in this Section that comply with system performance and other requirements.
- D. Smoke seals at top of partitions shall be flexible to allow for partition deflection.
- E. Polypropylene Sleeves (PP): (For cast-in device options.)

2.3 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

- A. Endothermic, Latex Compound Sealant: Single-component, endothermic, latex formulation.
- B. Intumescent, Latex Sealant: Single-component, Intumescent, latex formulation.
- C. Intumescent Putty: Non-hardening, dielectric, water-resistant putty containing no solvents, inorganic fibers, or silicone compounds.
- D. Intumescent Wrap Strips: Single-component, elastomeric sheet with aluminum or polyethylene foil on one side.
- E. Job-Mixed Vinyl Compound: Prepackaged vinyl-based powder product for mixing with water at Project site to produce a paintable compound, passing ASTM E 136, with flame-spread and smoke-developed ratings of zero per ASTM E 84.
- F. Mortar: Prepackaged dry mix composed of a blend of inorganic binders, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a non-shrinking, homogeneous mortar.
- G. Pillows/Bags: Re-usable, heat-expanding pillows/bags composed of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.
- H. Moldable putty pads by 3M or approved equal.
- I. Silicone Foam: Two-component, silicone-based liquid elastomer that, when mixed, expands and cures in place to produce a flexible, non-shrinking foam.
- J. Silicone Sealant: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealant of grade indicated below:
 - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and non-sag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless firestop system limits use to non-sag grade for both opening conditions.
- K. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic or polypropylene sleeve lined with an intumescent strip, an extended rectangular flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- L. Fire Rated Cable Management Devices: Factory-assembled round metallic sleeve device for use with cable penetrations, containing an integrated smoke seal fabric membrane that can be opened and closed for re-penetration.
- M. Drop-In Firestop Devices: Factory-assembled devices for use with combustible or noncombustible penetrants in cored holes within concrete floors. Device shall consist of galvanized steel sleeve lined with an intumescent strip, an extended rectangular flange attached to one end of the sleeve for fastening to concrete floor, and neoprene gasket.
- N. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.

- O. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized-steel sheet.
- P. Blocks/Plugs: Intumescent flexible block/plug suitable for reuse in re-penetration of openings. Blocks shall allow up to 12" of unreinforced annular space.
- Q. Tub Box Kit: Cast-in place pre-formed plastic tub box kit with three support legs for use with drain piping assembly associated with bathtub installations.

2.4 FIRE-RESISTIVE ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated that complies with ASTM C 920 requirements, including those referenced for Type, Grade, Class, and Uses, and requirements specified in this Section applicable to fire-resistive joint sealants.
 - 1. Sealant Colors: Color of exposed joint sealants as selected by the Architect.
- B. Single-Component, Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, G, A, and (as applicable to joint substrates indicated) O.
 - 1. Additional Movement Capability: Provide sealant with the capability to withstand 33 percent movement in both extension and compression for a total of 66 percent movement.
- C. Multi-Component, Non-Sag, Urethane Sealant: Type M; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, A, and (as applicable to joint substrates indicated) O.
 - 1. Additional Movement Capability: Provide sealant with the capability to withstand 40 percent movement in extension and 25 percent in compression for a total of 65 percent movement in joint width existing at time of installation, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, and remain in compliance with other requirements of ASTM C 920 for uses indicated.
- D. Single-Component, Non-Sag, Urethane Sealant: Type S; Grade NS; Class 25; and Uses NT, M, A, and (as applicable to joint substrates indicated) O.

2.5 MINERAL FIBER/CERAMIC WOOL NON-COMBUSTIBLE INSULATION (FIRE SAFING)

- A. Provide min. 4 pcf safing insulation; Thermafiber Safing Mineral Wool Insulation by Thermafiber, Inc. (an Owens Corning company), Roxul Safe Fire Safing Insulation by Rockwool, Mineral Wool Safing by Johns Manville or approved equal to suit conditions and to comply with fire resistance and firestop manufacturer's requirements.
- B. Material shall be classified non-combustible when tested per ASTM E 136.

2.6 MIXING

- A. For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions with Installer present, for compliance with requirements for opening configuration, penetrating items, substrates, and other conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:
 - 1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.
 - 2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form release agents from concrete.
- B. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing seal of firestopping with substrates.

3.3 CONDITIONS REQUIRING FIRESTOPPING

- A. Interior Walls and Partitions
 - 1. Construction joints between top of fire rated walls and underside of floors above, shall be firestopped.
 - 2. Firestop system installed shall have been tested by either UL or Omega Point, including exposure to hose stream test and including for use with steel fluted deck floor assemblies.
 - 3. Firestop system used shall allow for deflection of floor above.
- B. Penetrations
 - 1. Penetrations include conduit, cable, wire, pipe, duct, or other elements which pass through one or both outer surfaces of a fire rated floor, wall, or partition.
 - 2. Except for floors on grade, where a penetration occurs through a structural floor or roof and a space would otherwise remain open between the surfaces of the penetration and the edge of the adjoining structural floor or roof, provide firestopping to fill such spaces in accordance with ASTM E 814.

- 3. These requirements for penetrations shall apply whether or not sleeves have been provided, and whether or not penetrations are to be equipped with escutcheons or other trim. If penetrations are sleeved, firestop annular space, if any, between sleeve and wall of opening.
 - C. Provide firestopping to fill miscellaneous voids and openings in fire rated construction in a manner essentially the same as specified herein before.
- 3.4 INSTALLING THROUGH PENETRATION FIRESTOPS
- A. General: Comply with the through penetrations firestop manufacturer's installation instructions and drawings pertaining to products and applications indicated.
 - B. Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross-sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
 - C. Install fill materials for through penetration firestop systems by proven techniques to produce the following results:
 - 1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.
 - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 - 3. For fill materials that will remain exposed after completing work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
- 3.5 INSTALLING FIRE RESISTIVE JOINT SEALANTS
- A. General: Comply with ASTM C 1193, and with the sealant manufacturer's installation instructions and drawings pertaining to products and applications indicated.
 - B. Install joint fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire resistance rating required.
 - C. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross sectional shapes and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.
 - D. Tool no sag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.6 **INSTALLING FIRESAFING INSULATION**

- A. Install fire safing insulation utilizing welded or screw applied galvanized steel impaling pins and retaining clips; space clips or pins 24" o.c. maximum.
- B. Completely fill voids in areas where safing insulation is required. At spandrel conditions/floor edges, depth of insulation top to bottom shall be at least four (4) inches.
- C. Cover top of all safing insulation with firestop sealant or spray.

3.7 **FIELD QUALITY CONTROL**

- A. Inspecting agency employed and paid by the Owner will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.
- B. Inspecting agency will report observations promptly and in writing to Contractor, Owner and Architect.
- C. Do not proceed to enclose firestopping with other construction until reports of examinations are issued.
- D. Where deficiencies are found, Contractor must repair or replace firestopping so that it complies with requirements.

3.8 **CLEANING**

- A. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which openings and joints occur.
- B. Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to product firestopping complying with specified requirements.

END OF SECTION

SECTION 079200 - JOINT SEALERS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the joint sealers work as shown on the drawings and/or specified herein, including but not necessarily limited to the following:
 - 1. Flashing reglets and retainers.
 - 2. Coping joints.
 - 3. Exterior wall joints not specified to be sealed in other Sections of work.
 - 4. Control and expansion joints in walls.
 - 5. Joints at wall penetrations.
 - 6. Joints between items of equipment and other construction.
 - 7. All other joints required to be sealed to provide a positive barrier against penetration of air and moisture.

1.3 RELATED SECTIONS

- A. Roofing - Division 7.
- B. Firestop sealants – Section 078413.

1.4 QUALITY ASSURANCE

- A. Qualification of Installers: Use only personnel who are thoroughly familiar, skilled and specially trained in the techniques of sealant work, and who are completely familiar with the published recommendations of the sealant manufacturer.
- B. Pre-Construction Field Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to project joint substrates according to the method in ASTM C 794 and C 1521 that is appropriate for the types of Project joints.
- C. Perform testing per ASTM C 1248 on interior and exterior sealants to determine if sealants or primers will stain adjacent surfaces. No sealant work shall start until results of these tests have been submitted and the Architect has given written approval to proceed with the work.

1.5 SUBMITTALS

- A. Shop Drawings: Submit shop drawings showing all joint conditions, indicating relation of adjacent materials, all sealant materials (sealant, bond breakers, backing, primers, etc.), and method of installation.
 - 1. Submit joint sizing calculations certifying that movement capability of sealant is not being exceeded.
- B. Samples: Submit the following:
 - 1. Color samples of sealants, submit physical samples (not color chart).
 - 2. Sealant bond breaker and joint backing.
- C. Product Data: Submit manufacturer's technical information and installation instructions for:
 - 1. Sealant materials, indicating that material meets standards specified herein.
 - 2. Backing rods.
- D. Submit manufacturer's certification as required by Article 1.6 herein.
- E. Submit results of testing required in Article 1.4 herein.

1.6 MANUFACTURER'S RESPONSIBILITY AND CERTIFICATION

- A. Contractor shall require sealant manufacturer to review the Project joint conditions and details for this Section of the work. Contractor shall submit to the Architect written certification from the sealant manufacturer that joints are of the proper size and design, that the materials supplied are compatible with adjacent materials and backing, that the materials will properly perform to provide permanent watertight, airtight or vaportight seals (as applicable), and that materials supplied meet specified performance requirements.

1.7 ENVIRONMENTAL CONDITIONS

- A. Temperature: Install all work of this Section when air temperature is above forty (40) degrees F. and below eighty (80) degrees F., unless manufacturer submits written instructions permitting sealant use outside of this temperature range.
- B. Moisture: Do not apply work of this Section on surfaces which are wet, damp, or have frost.

1.8 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section, before, during and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.
- C. Storage

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1. Store sealant materials and equipment under conditions recommended by their manufacturer.
2. Do not use materials stored for a period of time exceeding the maximum recommended shelf life of the material.
3. Material shall be stored in unopened containers with manufacturers' name, batch number and date when shelf life expires.

1.9 GUARANTEE

- A. Provide a written, notarized guarantee from the manufacturer stating that the applied sealants shall show no material failure for a period of twenty (20) years.
- B. Contractor to provide a written, notarized, guarantee stating that the applied sealants shall show no failure due to improper installation for a period of five (5) years.
- C. Guarantee shall be in a form acceptable to the Owner and executed by an authorized individual.
- D. Include in guarantee provision, agreement to repair and/or replace, at Contractor's expense, sealant defects which develop during guarantee period, because of faulty labor and/or materials.

PART 2 PRODUCTS

2.1 SEALANT MATERIALS

- A. Exterior Wall Sealant: Provide one (1) part non-sag sealant equal to "DOWSIL 790" or "DOWSIL 795" made by The Dow Chemical Company, "Silpruf SCS 2000" or "LM SCS 2700" made by G.E., "Spectrem 1" or "Spectrem 3" made by Tremco or "Sonolastic 150" by Sonneborn conforming to the minimum standards of ASTM C 920, Type S, Grade NS, Class 50.
- B. Colors: Colors selected from manufacturer's standard selection.

2.2 MISCELLANEOUS MATERIALS

- A. Back-Up Materials: Provide back-up materials and preformed joint fillers, non-staining, non-absorbent, compatible with sealant and primer, and of a resilient nature, equal to "HBR" made by Nomaco Inc. or approved equal, twenty-five (25) percent wider than joint width. Materials impregnated with oil, bitumen or similar materials shall not be used. Provide back-up materials only as recommended by sealant manufacturer in writing.
- B. Provide bond breakers, where required, of polyethylene tape as recommended by manufacturer of sealant.
- C. Provide primers recommended by the sealant manufacturer for each material to receive sealant. Note that each exterior joint must be primed prior to sealing.
- D. Provide solvent, cleaning agents and other accessory materials as recommended by the sealant manufacturer.

- E. Materials shall be delivered to the job in sealed containers with manufacturer's original labels attached. Materials shall be used per manufacturer's printed instructions.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where joint sealers are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. Sealant Installation Standard: Comply with instructions and recommendations of the manufacturer and in accordance with ASTM C 1193 for use of joint sealants as applicable to materials, applications and conditions required by this Project where more stringent installation requirements are specified herein, such requirements shall apply.
- B. Sample Section of Sealant
 1. During sealant installation work in exterior wall, the manufacturer of sealant shall send their representative to the site, under whose supervision a section of the wall (used as "control section") shall be completed for purposes of determining performance characteristics of sealant in joints. Architect shall be informed of time and place of such installation of control section.
 2. Control section shall be installed according to specification given herein and shall not be considered as acceptable until written acceptance is provided by the Architect.
 3. Accepted control section shall be standard to which all other sealant work must conform.
- C. Supervision: The Contractor shall submit to the Architect written certification from the sealant manufacturer that the applicators have been instructed in the proper application of their materials. The Contractor shall use only skilled and experienced workmen for installation of sealant.
- D. Apply sealant under pressure with a hand or power actuated gun or other appropriate means. Gun shall have nozzle of proper size and provide sufficient pressure to completely fill joints as detailed. Neatly point or tool joint to provide the contour as indicated on the drawings.
- E. Preparation and Application
 1. Thoroughly clean all joints, removing all foreign matter such as dust, oil, grease, water, surface dirt and frost. Sealant must be applied to the base surface. Previously applied film must be entirely removed.
 2. Stone, masonry and concrete surfaces to receive sealant shall be cleaned where necessary by grinding, water blast cleaning, mechanical abrading, or combination of these methods as required to provide a clean, sound base surface for sealant adhesion.

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- a. Do not use any acid or other material which might stain surfaces.
 - b. Remove laitance by grinding or mechanical abrading.
 - c. Remove loose particles present or resulting from grinding, abrading, or blast cleaning by blowing out joints with compressed air, oil and water free, or vacuuming joints prior to application of primer or sealant.
3. Clean non-porous surfaces such as metal and glass chemically. Remove protective coatings on metallic surfaces by solvent that leaves no residue and is compatible with sealant. Use solvent and wipe dry with clean, dry lint free paper towels. Do not allow solvent to air dry without wiping. Clean joint areas protected with masking tape or strippable films as above after removal of tape film.
 4. Do not seal joints until they are in compliance with drawings, or meet with the control section standard.
 5. Joint Size and Sealant Size: Joints to receive sealant shall be at least 1/4" wide. In joint 1/4" to 3/8" wide, sealant shall be 1/4" deep. In joints wider than 3/8" and up to 1" wide, sealant depth shall be one half the joint width. For joints wider than 1", sealant depth shall be as recommended by the sealant manufacturer. Depth of joint is defined as distance from outside face of joint to closest point of the filler.
 6. Primer: Thoroughly clean joints and apply primer to all surfaces that will receive sealant. Apply primer on clean, dry surfaces, and prior to installation of joint backing. Completely wet both inner faces of the joint with primer. Mask adjacent surfaces of joint with non-staining masking tape prior to priming. Apply primer with clean brush and only when temperature is above 45 deg. F.
 7. Joint Backing: In joints where depth of joint exceeds required depth of sealant, install joint backing (after primer is dry) in joints to provide backing and proper joint shape for sealant. Proper shape for sealant is a very slight "hourglass" shape, with back and front face having slight concave curvature. Use special blunt T-shaped tool or roller to install joint backing to the proper and uniform depth required for the sealant. Joint backing shall be installed with approximately twenty-five (25) percent compressions. Do not stretch, twist, braid, puncture, or tear joint backing. Butt joint backing at intersections.
 8. Bond Breaker: Install bond breaker smoothly over joint backing so that sealant adheres only to the sides of the joint and not backing.
 9. Sealant Application: Apply sealant in accordance with the manufacturer's application manual and manufacturer's instructions, using hand guns or pressure equipment, on clean, dry, properly prepared substrates, completely filling joints to eliminate air pockets and voids. Mask adjacent surfaces of joint with non-staining masking tape. Force sealant into joint in front of the tip of the "caulking gun" (not pulled after it) and force sealant against sides to make uniform contact with sides of joint and to prevent entrapped air or pulling of sealant off of sides. Fill sealant space solid with sealant.
 10. Tooling: Tool exposed joints to form smooth and uniform beds, with slightly concave surface conforming to joint configuration per Figure 5A in ASTM C 1193. Finished joints shall be straight, uniform, smooth and neatly finished. Remove masking tape immediately after tooling of sealant and before sealant face starts to "skin" over. Neatly remove any excess sealant from adjacent surfaces of joint, leaving the work in a neat, clean condition.

11. Replace sealant which is damaged during construction process.

3.3 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed and cured sealant joints as follows:
 - a. Perform 5 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
 - b. Perform one test for each 5,000 feet of joint length thereafter or one test per each floor per elevation.
2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C1193 or Method A, Tail Procedure, in ASTM C1521.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
3. Inspect tested joints and report on the following:
 - a. Whether sealants filled joint cavities and are free of voids.
 - b. Whether sealant dimensions and configurations comply with specified requirements.
 - c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion complies with sealant manufacturer's field-adhesion hand-pull test criteria.
4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant material, sealant configuration, and sealant dimensions.
5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

END OF SECTION

SECTION 086300 - METAL FRAMED SKYLIGHT

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the metal framed skylight as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:
 - 1. Metal framed skylight.
 - 2. Gaskets and fasteners.
 - 3. Glass and glazing of skylight.

1.3 RELATED SECTIONS

- A. Carpentry - Section 062000.
- B. Sheet metal flashing - Section 076200.
- C. Glass and glazing – Section 088000.

1.4 QUALITY ASSURANCE

- A. Work of this Section, including design, engineering, fabrication, finishing, preparation at the job site, erection and glazing of the skylight system shall be the responsibility of the skylight manufacturer. The manufacturer shall be regularly engaged in the preceding phases of construction of skylights and be able to demonstrate that he has successfully performed on comparable projects over the previous five (5) years.
- B. Refer to Article 3.5 herein for field testing of skylight.
- C. Pre-Construction Conference: Attend a pre-construction conference with the Owner, Architect, Contractor and all involved trades to discuss the work and coordination with other trades.

1.5 REFERENCES

- A. Aluminum Association Incorporated (AA): SAS-30 Specifications for Aluminum Structures.
- B. American Architectural Manufacturers Association (AAMA)
 - 1. 501.3: Field Check of Water Penetration Through Installed Exterior Windows, Curtain Walls and Doors by Uniform Air Pressure Difference.

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2. 2605.2: Specification for High Performance Organic Coatings on Architectural Extrusions and Panels.
 3. Glass Design for Sloped Glazing.
 4. Skylight Handbook Design Guide.
 5. Sloped Glazing Guidelines.
- C. American National Standards Institute (ANSI): Z97.1-1984 - Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
- D. American Society for Testing and Materials (ASTM)
1. A 193: Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High Temperature Service.
 2. A 307: Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
 3. B 209: Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 4. B 211: Specification for Aluminum-Alloy Bar, Rod, and Wire.
 5. B 221: Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes.
 6. B 316: Specification for Aluminum and Aluminum-Alloy Rivet and Cold-Heading Wire and Rods.
 7. C 719: Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cycle Movement.
 8. C 794: Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
 9. C 1036: Specification for Flat Glass.
 10. C 1048: Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
 11. D 395: Test Methods for Rubber Property-Compression Set.
 12. D 412: Test Methods for Rubber Properties in Tension.
 13. D 1171: Test Method for Rubber Deterioration - Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens).
 14. D 2240: Test Method for Rubber Property - Durometer Hardness.
 15. E 283: Test Method for Rate of Air Leakage Through Exterior Window, Curtain Walls, and Doors.
 16. E 330: Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.

17. E 331: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 18. E 547: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference.
 19. E 773: Test Method for Seal Durability of Sealed Insulating Glass Units.
 20. E 774: Specifications for Sealed Insulating Glass Units.
 21. E 783: Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.
- E. Consumer Product Safety Commission (CPSC): 16CFR Part 1201 - Architectural Glazing Standards and Related Material.
- F. Glass Association of North America (GANA): Glazing Manual.
- G. Insulating Glass Certification Council (IGCC): Classification of Insulating Glass Units.

1.6 SYSTEM DESCRIPTION

A. Design Requirements

1. Extruded aluminum members with a system of alternate serrations for attachment of exterior glass retainers with 1/4" x 20 stainless steel screws and snap on aluminum caps.
2. Integral continuous interior guttering system within skylight framing members for positive drainage of condensation.
3. Skylight shall have weep holes to drain water to the exterior, one 3/8" dia. Weep positioned within 6" of rafter base.
4. Finish glazed exterior horizontal joints with field applied structural silicone or fully capped system.

1.7 PERFORMANCE REQUIREMENTS

A. General: Provide metal-framed skylight capable of withstanding loads and thermal and structural movements indicated without failure. Failure includes the following:

1. Deflection exceeding specified limits.
2. Thermal stresses transferred to the building structure.
3. Skylight framing members transferring stresses, including those caused by thermal and structural movement, to glazing.
4. Weakening of fasteners, attachments, and other components.

B. Deflection Limits: As follows:

1. Deflection Normal to Glazing Plane: Limited to 1/240 of clear span plus 1/4 inch (6.35 mm) for spans more than 13 feet 6 inches (4.1 m) or an amount that restricts edge deflection of individual glazing lites to 3/4 inch (19.1 mm), whichever is less.

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- C. Structural Loads: Design wind speed shall be 116 MPH for Risk category III building. Skylight manufacturer shall develop their shop drawing and calculation based on 2020 NYSBC with reference to ASCE 7-16
- D. Structural Performance: Provide metal-framed skylight, including anchorage, capable of withstanding pressures indicated without material and deflection failures and permanent deformation of structural members exceeding 0.2 percent of span when tested according to ASTM E 330.
- E. Air Infiltration: Provide metal-framed skylight with maximum air leakage of 0.06 cfm/sq. ft. (0.03 L/s per sq. m) of surface when tested according to ASTM E 283 at a minimum static-air-pressure differential of 6.24lb/sq. ft. (300 Pa).
- F. Water Penetration: Provide metal-framed skylight that do not evidence water penetration when tested according to ASTM E 331 at a minimum differential static pressure of 20 percent of positive design wind pressure, but not less than 15 lb/sq. ft. (718 Pa).
- G. Condensation Resistance: Provide aluminum-framed systems that when tested with fixed glazing, have a frame condensation-resistance factor (CR) of not less than 46 when tested according to NFRC 500 when clear over clear insulated glass is used.
- H. Thermal Performance: Provide metal-framed skylight that meet the following minimum requirements:
 - 1. U-Factor : 0.48
 - 2. SHGC: 0.38
- I. Thermal Movement: Provide metal-framed skylight that allow for thermal movements resulting from the following maximum change (range) in ambient temperatures by preventing buckling, sealant failure, and other detrimental effects.
 - 1. Temperature Change (Range): 100 degrees F.
- J. For Field Testing, refer to Article 3.6 herein.

1.8 SUBMITTALS

- A. Prior to construction of the work, submit shop drawings for the fabrication and installation of all work and associated components.
 - 1. Details of all work, at full scale as far as practical, showing metal and glass thicknesses, arrangement of components, of joining, details of all field connections and anchorage, field measurements, diagrams and details explaining provisions for thermal movement, waterproofing, fastening and sealing methods, glazing methods, insulation, metal finishes and all other pertinent information.
 - 2. Include structural calculations for the work and its anchorage to the building structure and all materials and all connections fully dimensioned. Show ultimate factor of safety. Drawings and calculations shall bear the seal and signature of a professional Engineer licensed in the State of New York. All calculations shall be in accordance with the current design rules of the Aluminum Association, AISI, AISC, and ACI.

3. Show all dimensions including section thickness, frame lap over glass and edge clearance. Show tolerances for all dimensions including field dimensions, mill and shop dimensions and glass dimensions.
- B. Submit samples of all materials to be encompassed in the work in size and quantity, as required by the Architect. These will include, but not be limited to, samples of:
 1. Aluminum rafter component eighteen (18) inches long.
 2. Each type and thickness of glass 12" x 12".
 3. Gaskets, sealing materials, joint fillers, back-up rods and flashing.
- C. Manufacturer's Literature: Submit technical descriptive data and installation instructions for each type of glass and glazing material.
- D. Submit certification that skylight assembly, including glass, is capable of meeting performance criteria specified herein.

1.9 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Verify the availability of all specified items upon Contract signing, and order in advance to avoid delays to the work. Certain materials may require considerable lead-time for delivery.
- C. All materials are to be new. Handle, store, and install materials as recommended by the manufacturer except as required by these Specifications. Materials shall be delivered to the job site in their original containers with the manufacturer's name, grade, number, and batch identification on the container or packaging.
- D. Keep all materials dry while transported, stored, and delivered. Do not allow materials to be exposed to any moisture at any time, and promptly remove exposed materials from the site.
- E. Store all materials on pallets and cover with canvas tarpaulins (not polyethylene), top to bottom.
- F. Handle all materials to avoid damage. Promptly remove from site and materials rejected by the Architect.
- G. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.10 WARRANTY

- A. Manufacturer shall certify that skylight frame is free of defects in design, material, and construction, and that the skylight is warranted against leakage for a period of ten (10) years.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Manufacturers: Provide architectural pre-fabricated skylight from the following manufacturers:
1. Pinnacle 350/600 system by Wasco Part of the VELUX Group, Wells, ME (800-388-0293)
 2. Infinite Sky™ Architectural Structural Pyramid Skylights by Daylite, Denver, CO 80216 (800-748-2036)
 3. SI5206 Aluminum Pyramid Skylight by Solar Innovations, Pine Grove, Pennsylvania (800-618-0669)

2.2 MATERIALS

- A. Framing Members: Extruded aluminum alloy 6063-T5 or T6, ASTM B 221 with minimum effective thickness of 0.109 inches.
- B. Exterior Pressure Caps: Extruded aluminum alloy 6063-T5 or T6, ASTM B 221 with minimum effective thickness of 0.090 inches.
- C. Concealed Flashing: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding flashing; compatible with adjacent materials.
- D. Exposed Flashing and Closures: Aluminum sheet alloy and temper of 1100-H14, thickness as require for proper performance.
1. Minimum Thickness: 0.032 inch Apron Flashing.
 2. Minimum Thickness: 0.062 inch Closures.
- E. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories; compatible with adjacent materials.
1. Aluminum Retaining Cap Fasteners and Framing Members Fasteners: ASTM A 193/A 193M, Series 300 stainless-steel screws; type as recommended by manufacturer.
 2. Connections to Supporting Structure: Series 300 Stainless Steel or ASTM A 307, hot dipped galvanized steel fasteners by installer.
- F. Framing-System Sealants: Single-component, non-sag, high performance, non-priming, gun-grade elastomeric polyurethane sealant furnished by skylight manufacturer.
1. Sealant complies with ASTM C920, Type S, Grade NS, Class 25, Use T, NT, M, A, G, and O. Canadian Specification CAN/CGSB-19.13-M87, Classification MCG-2-25-A-N.
 2. Sealant conforms to USDA approval standards.
- G. Bituminous Paint: Cold-applied asphalt mastic paint complying with SSPC-Paint 12, except containing no asbestos, and formulated for 30-mil thickness per coat.

2.3 GLAZING MATERIALS

A. Glass

1. Standard Certification Requirements

- a. Float Glass: ASTM C1036.
- b. Heat Treated Glass: ASTM C1048, with surface stress of 5000 psi \pm 1500 psi.
- c. Laminated Glass: Two (2) lites interleaved with polyvinyl butyral (PVB). Units must meet criteria of ANSI Z97.1 and CPSC 16 CFR 1201 for safety glazing. Provide PVB layer of 0.060" for heat strengthened units.
- d. Insulating Glass: CBA rated by the Insulating Glass Certification Council (IGCC) when tested in accordance with ASTM E773 and ASTM E774. Dual edge seals with secondary seal being silicone. Exterior lite of fully tempered glass and interior lite of laminated glass.

2. Performance Requirements

- a. Probability of breakage not to exceed 8/1000 for vertical glass and 1/1000 for sloped glass upon first application of design wind and live load pressures. For glass selection, design wind pressure for a one (1) minute duration. For loads of longer duration use standard engineering practices for glass selection.
- b. Probability of breakage due to anticipated thermal stress not to exceed 8/1000 for vertical glass and 1/1000 for sloped glass.

3. Glazing Unit Composition: 1-5/16" insulated glass consisting of 1/4" Low-E clear tempered glass exterior lite; 1/2" air space, and 9/16" clear laminated tempered interior lite with a 0.060" SGP interlayer.

B. Glazing Gaskets: Manufacturer's proprietary pressure-glazing gaskets of elastomer type and hardness selected by the skylight manufacturer to comply with requirements. Glazing gaskets to be extruded thermoplastic elastomer by the skylight manufacturer.

C. Spacers, Edge Blocks, and Setting Blocks: Manufacturer's standard permanent non-migrating type of elastomer type and hardness selected to comply with requirements. Spacers, Edge Blocks, and Setting Blocks to be extruded thermoplastic elastomer by the skylight manufacturer.

D. Glazing Weatherseal Sealant: Neutral-curing silicone sealant recommended by skylight and sealant manufacturers for this use and furnished by skylight manufacturer.

1. Sealant is capable of withstanding 50 percent movement in both extension and compression (total of 100 percent movement) when tested for adhesion and cohesion under maximum cyclic movement according to ASTM C 719.
2. Sealant complies with ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and, as applicable to substrates including other sealants with which it comes in contact, O.
3. Color: Black.

- E. Flashing Sealant: Single-component, non-sag, high performance, non-priming, gun-grade elastomeric polyurethane sealant furnished by skylight manufacturer.
 - 1. Sealant complies with ASTM C920, Type S, Grade NS, Class 25, Use T, NT, M, A, G, and O. Canadian Specification CAN/CGSB-19.13-M87, Classification MCG-2-25-A-N.
 - 2. Sealant conforms to USDA approval standards.

2.4 FABRICATION

- A. Framing Components: As follows:
 - 1. Factory fit and assemble components, where practical.
 - 2. Fabricate components that, when assembled, will have accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.
 - 3. Fabricate components to drain water passing joints and to drain condensation and moisture occurring or migrating within skylight system to the exterior.
 - 4. Fabricate components to accommodate expansion, contraction, and field adjustment, and to provide for minimum clearance and shimming at skylight perimeter.
 - 5. Fabricate components to ensure that glazing is thermally and physically isolated from framing members.
 - 6. Form shapes with sharp profiles, straight and free of defects or deformations, before finishing.
 - 7. Fit and assemble components to greatest extent practicable before finishing.
 - 8. Reinforce members as required to retain fastener threads.
 - 9. Attach retainer bars with gasketed stainless steel fasteners spaced at a maximum of 12 inches on center.
 - 10. Weld components before finishing and in concealed locations to greatest extent practicable to minimize distortion.
 - 11. Before shipping, shop assemble, mark, and disassemble components that cannot be permanently shop assembled.
- B. Provide continuous aluminum frame with weatherproof splice joints and locked and sealed or fully welded corners. Locate weep holes in the frame at each rafter connection to drain condensation.
- C. Prepare framing to receive anchor and connection devices and fasteners.
- D. Field Glazing: Locate and size extruded elastomeric setting blocks and spacers in accordance with the glazing manufacturer's recommendations. At no point shall the glazing come in contact with the skylight frame or fasteners.

2.5 ALUMINUM FINISHES

- A. General: Comply with NAAMM "Metal Finishes Manual" recommendations for application and designations of finishes.
- B. Finish designations prefixed by AA conform to the system for designations of aluminum finishes established by the Aluminum Association.
 - 1. Powder Coat High-Performance Architectural Coating complying with AAMA 2605.
 - a. Exterior Color: Bronze
 - b. Interior Color: White

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where metal framed skylight is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work. Starting of work means acceptance of substrate.

3.2 PREPARATION

- A. Contact between aluminum and dissimilar metals shall receive a protective coating of asphaltic paint for the prevention of electrolytic action and corrosion.
- B. Do not start skylight installation until perimeter flashing systems are in place and (where applicable) roofing and flashing is completed at skylight curbs.

3.3 GENERAL WORKMANSHIP REQUIREMENTS

- A. Substrates must be dry, clean, and smooth. Do not work in rain or winds gusting over 30 mph, temperatures below 40°F, or in presence of any water. Comply with applicable recommendations by manufacturers of all materials for workmanship and handling except as modified in this Section. Conform to the handling standards of the American Architectural Manufacturers Association (AAMA) Aluminum Curtain Wall Manual #10, "Care and Handling of Architectural Aluminum from Shop to Site." Provide convenient access to the Architect for observation.
- B. All mechanics on this project shall be completely familiar with these Contract Documents and the approved shop drawings prior to any installation.
- C. Do not permit the edges of the insulated glass to contact any solvents.
- D. Do not dilute primers, solvents, cements, adhesives, coatings, or sealants. Keep containers closed except when removing materials from them.
- E. Use gloves and tools free of dirt, grease, and other contaminants.
- F. Coordinate installation of metal flashing with other trades. Isolate all dissimilar metal surfaces using a specified isolation layer as a separator.

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- G. All glass shall "float" in the opening and shall be fully separated from contacting mullions, fasteners, and other rigid components at all times, including while in service.
- H. Seal joints watertight (as shown on drawings) with specified sealant unless otherwise indicated. Do not allow glazing sealants to impede drainage of water in the glazing rabbet; do not "plug" glazing pocket corners with sealant.
- I. Glazing pockets shall weep to the exterior at the sill of each opening. Systems shall not direct water to contact edges of insulating glass units. Prevent water infiltration at weeps. Coordinate gutter and weep systems with other sections and surrounding work.
- J. Allow gaskets to relax and recover several hours prior to installation. All gaskets shall be oversized 1% to 2% in length beyond the daylight dimensions for the glass. Install gaskets by inserting gaskets at ends and center first, then crowding remainder of gasket length into the race. Seal gasket corners with silicone sealant.
- K. As the installation will take several days, ensure the skylight opening is protected from the elements. Submit design of opening protection for review and approval by Architect.
- L. For installation of glazing, follow all procedures and reference standards contained in Section 08800 – Glass and Glazing.

3.4 INSTALLATION

- A. Install skylight frame, glass and accessory items as needed in accordance with manufacturer's instructions.
- B. Install skylight system under the direction of the skylight manufacturer's own experienced mechanics. Coordinate the installation of the first skylight with the Architect so that he can be present. Installation methods shall be established during first installation. First installations shall serve as model for installation of balance of work.
- C. Erect system plumb and true, in proper alignment and relation to established lines and grades as shown on approved shop drawings.
- D. Anchor skylight to structure in strict accordance with approved shop drawings. Inspect frames immediately before placing into opening for any damage, including for finish damage and discontinuous frame corner seals. Report damaged components to the Architect for direction. Repair damage to the satisfaction of the Architect or Architect's representative. If satisfactory repair of damaged component is not possible, replace with new undamaged component.
- E. Use high performance silicone sealants to seal horizontal joints between glass panels and silicone sealant to wet seal joints between snap-on cap retainers and glass.
- F. Apply sealing materials in strict accordance with sealant manufacturer's instructions. Before application remove mortar, dirt, dust, moisture and other foreign matter from surfaces it will contact. Mask adjoining surfaces to maintain a clean and neat appearance. Tool sealing compounds to fill the joint and provide a smooth finish.

3.5 TOLERANCES

- A. All parts of the work, when completed, shall be within the following tolerances:

1. Maximum Variation from Plane or Location Shown on Approved Shop Drawings: 1/8" per twelve (12) feet of length or 1/2" in total length.
2. Maximum Offset from True Alignment Between Two Members Abutting End to End, Edge to Edge in Line or Separated by Less than Three (3) Inches: 1/32".

3.6 FIELD QUALITY CONTROL

A. Water Leakage Testing: Employ an independent testing agency to perform water leakage testing of completed portions of the skylight systems.

1. Test Procedure: AAMA 501.2.
2. Testing Parameters:
 - a. Locations; Perform testing in at all field installed joints on the skylight.
 - b. Water Application Pressure: 35 psi.
 - c. Test Duration; 2 min/ft. of joint being tested (each tested "location" shall consist of 5 ft. of joint).
 - d. Passing Criteria: No visible water on the interior of the skylight. Water controlled by flashing and gutters that is drained to exterior and cannot damage adjacent materials or finishes is not considered water leakage.
3. Submit a test report describing the conditions of the test and its results.

B. If a test fails, two (2) or more locations shall be re-tested at Contractor's expense.

3.7 CLEANING

- A. Install skylight frame and associated metal to avoid soiling or smudging finish.
- B. Clean glass at time of installation.

END OF SECTION

SECTION 099600 HIGH PERFORMANCE PAINTING

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 high performance paint as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Prime painting unprimed surfaces to be painted under this Section.
 - 2. Painting all items furnished with a prime coat of paint, including touching up of or repairing of abraded, damaged or rusted prime coats applied by others.
 - 3. Painting all ferrous metal (except stainless steel) exposed to view.
 - 4. Painting all galvanized ferrous metals exposed to view, where painting of the galvanized substrate is specifically called for in the Architectural Drawings.

1.3 QUALITY ASSURANCE

- A. Qualification of Painters: Use only qualified journeyman painters for the mixing and application of paint on exposed surfaces.
- B. Paint Coordination: Provide finish coats which are compatible with the prime paints used. Review other Sections of these specifications in which prime paints are to be provided to ensure compatibility of the total coatings system for the various substrates. Upon request from other subcontractors, furnish information on the characteristics of the finish materials proposed to be used, to ensure that compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify the Architect in writing of any anticipated problems using the coating systems as specified with substrates primed by others.
- C. All paints must conform to the Volatile Organic Compounds (VOC) standards of prevailing codes and ordinances.

1.4 SUBMITTALS

- A. Sustainability Data: For each Sustainability Focus Material in Accordance with Section 018113 "Sustainability Requirements Summary".

B. Materials List

1. Before any paint materials are delivered to the job site, submit to the Architect a complete list of all materials proposed to be furnished and installed under this portion of the work.
2. This shall in no way be construed as permitting substitution of materials for those specified or accepted for this work by the Architect.

C. Samples

1. Accompanying the materials list, submit to the Architect copies of the full range of colors available in each of the proposed products.
2. Upon direction of the Architect, prepare and deliver to the Architect two (2) identical sets of Samples of each of the selected colors and glosses painted onto 8-1/2" x 11" x 1/4" thick material; whenever possible, the material for Samples shall be the same material as that on which the coating will be applied in the work.

- D. Manufacturer's Recommendations: In each case where material proposed is not the material specified or specifically described as an acceptable alternate in this Section of these specifications, submit for the Architect's review the current recommended method of application published by the manufacturer of the proposed material.

1.5 PRODUCT HANDLING

- A. Deliver all paint materials to the job site in their original unopened containers with all labels intact and legible at time of use.

B. Protection

1. Store only the approved materials at the job site, and store only in a suitable and designated area restricted to the storage of paint materials and related equipment.
2. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste.
3. Use all means necessary to protect paint materials before, during and after application and to protect the installed work and materials of all other trades.

- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.6 JOB CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 50 degrees F. and 90 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions.

- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 degrees F. and 95 degrees F. unless otherwise permitted by the paint manufacturer's printed instructions.

- C. Do not apply paint in snow, rain, fog or mist; or when the relative humidity exceeds eighty-five (85) percent; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer's printed instructions.

- D. Painting may be continued during inclement weather only if the areas and surfaces to be painted are enclosed and heated within the temperature limits specified by the paint manufacturer during application and drying periods.

PART 2 PRODUCTS

2.1 SUSTAINABILITY CHARACTERISTICS

- A. Sustainability Characteristics for each Sustainability Focus Material in Accordance with Section 018113 Appendix A and Appendix B.

2.2 PAINT MANUFACTURERS

- A. Provide Themec products listed below as the basis of design or approved equal by Carboline, Sherwin Williams, International Protective Coatings, Benjamin Moore or approved equal.

2.3 MATERIALS

- A. Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer, and use only to recommended limits.
- B. Colors and Glosses: All colors and glosses shall be as selected by the Architect. Certain colors will require paint manufacturer to prepare special factory mixes to match colors selected by the Architect. Color schedule (with gloss) shall be furnished by the Architect.
- C. Coloring Pigment: Products of or furnished by the manufacturer of the paint or enamel approved for the work.
- D. Linseed Oil: Raw or boiled, as required, of approved manufacture, per ASTM D 234 and D 260, respectively.
- E. Turpentine: Pure distilled gum spirits of turpentine, per ASTM D 13.
- F. Shellac: Pure gum shellac (white or orange) cut in pure denatured alcohol using not less than four (4) lbs. of gum per gallon of alcohol.
- G. Driers, Putty, Spackling Compound, Patching Plaster, etc.: Best quality, of approved manufacture.
- H. Heat Resistant Paint: Where required, use heat resistant paint when applying paint to heating lines and equipment.

2.4 GENERAL STANDARDS

- A. The various surfaces shall be painted or finished as specified below in Article 2.4. However, the Architect reserves the right to change the finishes within the range of flat, semi-gloss or gloss, without additional cost to the Owner.
- B. All paints, varnishes, enamels, lacquers, stains and similar materials must be delivered in the original containers with the seals unbroken and label intact and with the manufacturer's instructions printed thereon.

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- C. All painting materials shall bear identifying labels on the containers with the manufacturer's instructions printed thereon.
- D. Paint shall not be badly settled, caked or thickened in the container, shall be readily dispersed with a paddle to a smooth consistency and shall have excellent application properties.
- E. Paint shall arrive on the job color-mixed except for tinting of under-coats and possible thinning.
- F. All thinning and tinting materials shall be as recommended by the manufacturer for the particular material thinned or tinted.
- G. It shall be the responsibility of the Contractor to see that all mixed colors match the color selection made by the Architect prior to application of the coating.

2.5 SCHEDULE OF FINISHES

A. High Performance Coating On Exterior Galvanized Ferrous Metals

- First Coat: "27 Typoxy" or "N69 Epoxoline II" by Tnemec; "Intergard 345" by International Protective Coatings; "Carboguard 893 SG" or "Carboguard 888" by Carboline; "Devran 203 WB Epoxy Primer" by Akzo; Epoxy Mastic Coating V 160 Series by Cortech/Moore or "Recoatable Epoxy Primer 867-45" by Sherwin Williams.
- Second Coat: "V73 Endura Shield" or "1074/1075" by Tnemec; "Interthane 870UHS" or "990 UHS" by International Protective Coatings; "Carbothane 133 LH" by Carboline; "Devthane 379UH Aliphatic Vizethne" by Akzo; Acrylic Aliphatic Urethane V 500 (Gloss) or V 510 (Semi-Gloss) by Corotech/Moore or "Hi-Solids Urethane B65-300/350" by Sherwin Williams.

B. High Performance Coating On Exterior Non-Galvanized Ferrous Metals

- Prime Coat: "Tneme-Zinc 90/97" by Tnemec; "Interzinc 52" or "315" by International Protective Coatings; "Carbozinc 859, Class B" by Carboline; "Cathacoat 302V Reinforced Inorganic Zinc Primer" by Akzo; Organic Zinc Rich Primer V 170 by Corotech/Moore or "Zinc Clad II Plus Inorganic Zinc Rich Coating B69V212" by Sherwin Williams.
- Second Coat: "27 Typoxy" or "N69 Epoxoline II" by Tnemec; "Intergard 345" by International Protective Coatings; "Carboguard 893 SG" or "Carboguard 888" by Carboline; "Bar-Rust 231V Multi Purpose Epoxy Mastic" by Akzo; Epoxy Mastic Coating V 160 Series by Corotech/Moore or "Macropoxy 646 I.C. Epoxy B58-600" by Sherwin Williams.
- Third Coat: "V73 Endura Shield" or "1074/1075" by Tnemec; "Interthane 870UHS" or "990 UHS" by International Protective Coatings; "Carbothane 133 LH" by Carboline; "Devthane 379 UH Aliphatic Urethane" by Akzo; Acrylic Aliphatic Urethane V 500 (Gloss) or V 510 (Semi-Gloss) by Corotech/Moore or "Hi-Solids Polyurethane B65-300/350" by Sherwin Williams.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where painting and finishing are to be applied and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 GENERAL WORKMANSHIP REQUIREMENTS

- A. Only skilled mechanics shall be employed. Application may be by brush or roller. Spray application only upon acceptance from the Architect in writing.
- B. The Contractor shall furnish the Architect a schedule showing when he expects to have completed the respective coats of paint for the various areas and surfaces. This schedule shall be kept current as the job progresses.
- C. The Contractor shall protect his work at all times, and shall protect all adjacent work and materials by suitable covering or other method during progress of his work. Upon completion of the work, he shall remove all paint and varnish spots from floors, glass and other surfaces. He shall remove from the premises all rubbish and accumulated materials of whatever nature not caused by others and shall leave his part of the work in clean, orderly and acceptable condition.
- D. All materials shall be applied under adequate illumination, evenly spread and flowed on smoothly to avoid runs, sags, holidays, brush marks, air bubbles and excessive roller stipple.
- E. Coverage and hide shall be complete. When color, stain, dirt or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, color, appearance and coverage, at no additional cost to the Owner.

- F. All coats shall be dry to manufacturer's recommendations before applying succeeding coats.

3.3 PREPARATION OF SURFACES

A. General

1. The Contractor shall be held wholly responsible for the finished appearance and satisfactory completion of painting work. Properly prepare all surfaces to receive paint, which includes cleaning, sanding, and touching-up of all prime coats applied under other Sections of the work. Broom clean all spaces before painting is started. All surfaces to be painted or finished shall be perfectly dry, clean and smooth.
2. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.
3. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease with clean cloths and cleaning solvents prior to mechanical cleaning. Program the cleaning and painting so that dust and other contaminants from the cleaning process will not fall in wet, newly painted surfaces.

B. Metal Surfaces

1. Weld Fluxes: Remove weld fluxes, splatters, and alkali contaminants from metal surfaces in an approved manner and leave surface ready to receive painting.
2. Bare Metal: Thoroughly clean off all foreign matter such as grease, rust, scale and dirt before priming coat is applied. Clean surfaces, where solder flux has been used, with benzene. Clean surfaces by flushing with mineral spirits. For aluminum surfaces, wipe down with an oil free solvent prior to application of any pre-treatment.
 - a. Bare metal to receive high performance coating specified herein must be blast cleaned SSPC SP-6 prior to application if field applied primer; coordinate with steel trades furnishing ferrous metals to receive this coating to insure that this cleaning method is followed.
3. Shop Primed Metal: Clean off foreign matter as specified for "Bare Metal." Prime bare, rusted, abraded and marred surfaces with approved primer after proper cleaning of surfaces. Sandpaper all rough surfaces smooth.
4. Galvanized Metal: Prepare surface as per the requirements of ASTM D 6386.
5. Metal Filler: Fill dents, cracks, hollow places, open joints and other irregularities in metal work to be painted with an approved metal filler suitable for the purpose and meeting the requirements of the related Section of work; after setting, sand to a smooth, hard finish, flush with adjoining surface.

- C. Testing for Moisture Content: Contractor shall test all plaster, masonry, and drywall surfaces for moisture content using a reliable electronic moisture meter. Contractor shall also test latex type fillers for moisture content before application of top coats of paint. Do not apply any paint or sealer to any surface or to latex type filler where the

moisture content exceeds seven (7) percent as measured by the electronic moisture meter.

- D. Touch-Up: Prime paint all patched portions in addition to all other specified coats.

3.4 MATERIALS PREPARATION

- A. Mix and prepare painting materials in strict accordance with the manufacturer's directions.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir all materials before application to produce a mixture of uniform density, and as required during the application of the materials. Do not stir any film which may form on the surface into the material. Remove the film and, if necessary, strain the material before using.
- D. Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are to be applied. Tint undercoats to match the color of the finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

3.5 APPLICATION

A. General

1. Apply paint by brush or roller in accordance with the manufacturer's directions. Use brushes best suited for the type of material being applied. Use rollers of carpet, velvet back, or high pile sheep's wool as recommended by the paint manufacturer for material and texture required.
2. The number of coats and paint film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried. Sand between each enamel or varnish coat application with fine sandpaper, or rub surfaces with pumice stone where required to produce an even, smooth surface in accordance with the coating manufacturer's directions.
3. Apply additional coats when undercoats, stains, or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Give special attention to insure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a film thickness equivalent to that of flat surfaces.

B. Scheduling Painting

1. Apply the first coat material to surfaces that have been cleaned, pre-treated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
2. Allow sufficient time between successive coatings to permit proper drying. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

- C. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.
- D. "Touching-Up" of Factory Finishes: Unless otherwise specified or shown, materials with a factory finish shall not be painted at the project site. To "touch-up," the Contractor shall use the factory finished material manufacturer's recommended paint materials to repair abraded, chipped, or otherwise defective surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether to be painted or not, against damage by the painting and finishing work. Leave all such work undamaged. Correct any damages by cleaning, repairing or replacing, and repainting, as acceptable to the Architect.
- B. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

3.7 CLEAN UP

- A. During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each work day.
- B. Upon completion of painting work, clean window glass and other paint spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- C. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION

SECTION 221423

STORM DRAINAGE 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. Roof Drains.
 - 2. Retrofit Drains

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.4 QUALITY ASSURANCE

- A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agency.

PART 2 - PRODUCTS

2.1 METAL ROOF DRAINS

- A. Cast-Iron, Large-Sump, General-Purpose Roof Drains
 - 1. Manufacturer's
 - a. Jay R. Smith
 - b. Mifab
 - c. Josam
 - d. Zurn
 - 2. Standard: ASME A112.6.4, for general-purpose roof drains.
 - 3. Body Material: Cast iron
 - 4. Combination Flashing Ring and Gravel Stop: Required.
 - 5. Flow-Control Weirs: Not required.
 - 6. Outlet: Bottom
 - 7. Extension Collars: Required

8. Sump Receiver Plate: Required
9. Dome Material: Cast iron
10. Perforated Gravel Guard: Not required.
11. Vandal-Proof Dome: Not required.
12. Water Dam: Not required.

2.2 RETROFIT DRAIN

- A. Aluminum drain, aluminum body, Retrofit Roof Drains:
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Marathon Roofing Products Inc.
 - b. Portals Plus
 - c. OMG Roofing Products
 2. Standard: ASME A112.6.4.
 3. Body Material: Heavy duty spun aluminum 0.125 gauge.
 4. Dimension of Flange: 16 inch diameter.
 5. Strainer: Bolt down aluminum 7.5 inch diameter x 4 inch tall.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install roof drains at low points of roof areas according to roof membrane manufacturer's written installation instructions.
 1. Install flashing collar or flange of roof drain to prevent leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.
 2. Install expansion joints, if indicated, in roof drain outlets.
 3. Position roof drains for easy access and maintenance.
- B. Install retrofit roof drains within existing roof drains according to manufacturer's requirements and according to roof membrane manufacturer's written installation instructions.
 1. Install flashing collar or flange of roof drain to prevent leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.
 2. Install expansion joints, if indicated, in roof drain outlets.
 3. Position roof drains for easy access and maintenance.

3.2 FLASHING INSTALLATION

- A. Fabricate flashing from single piece of metal unless large pans, sumps, or other drainage shapes are required.
- B. Install sheet flashing on pipes, sleeves, and specialties passing through or embedded in roofs with waterproof membrane.
- C. Set flashing on roofs in solid coating of bituminous cement.

- D. Secure flashing into sleeve and specialty clamping ring or device.

3.3 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 22 14 23

SECTION 23 05 13

COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes general requirements for single-phase and polyphase, general-purpose, horizontal, small and medium, squirrel-cage induction motors for use on alternating-current power systems up to 600 V and installed at equipment manufacturer's factory or shipped separately by equipment manufacturer for field installation.

1.02 COORDINATION

- A. Coordinate features of motors, installed units, and accessory devices to be compatible with the following:
 - 1. Motor controllers.
 - 2. Torque, speed, and horsepower requirements of the load.
 - 3. Ratings and characteristics of supply circuit and required control sequence.
 - 4. Ambient and environmental conditions of installation location.

PART 2 - PRODUCTS

2.01 GENERAL MOTOR REQUIREMENTS

- A. Comply with NEMA MG 1 unless otherwise indicated.

2.02 MOTOR CHARACTERISTICS

- A. Duty: Continuous duty at ambient temperature of 40 deg C and at altitude of 3300 feet above sea level.
- B. Capacity and Torque Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, at installed altitude and environment, with indicated operating sequence, and without exceeding nameplate ratings or considering service factor.

2.03 POLYPHASE MOTORS

- A. Description: NEMA MG 1, Design B, medium induction motor.
- B. Efficiency: Premium efficient, as defined in NEMA MG 1.
- C. Service Factor: 1.15.
- D. Multispeed Motors: Variable torque.
 - 1. For motors with 2:1 speed ratio, consequent pole, single winding.
 - 2. For motors with other than 2:1 speed ratio, separate winding for each speed.
- E. Multispeed Motors: Separate winding for each speed.
- F. Rotor: Random-wound, squirrel cage.
- G. Bearings: Regreasable, shielded, antifriction ball bearings suitable for radial and thrust loading.
- H. Temperature Rise: Match insulation rating.
- I. Insulation: Class F.
- J. Code Letter Designation:
 - 1. Motors 15 HP and Larger: NEMA starting Code F or Code G.
 - 2. Motors Smaller Than 15 HP: Manufacturer's standard starting characteristic.
- K. Enclosure Material: Cast iron for motor frame sizes 324T and larger; rolled steel for motor frame sizes smaller than 324T.

2.04 ADDITIONAL REQUIREMENTS FOR POLYPHASE MOTORS

- A. Motors Used with Reduced-Voltage and Multispeed Controllers: Match wiring connection requirements for controllers with required motor leads. Provide terminals in motor terminal box, suited to control method.
- B. Motors Used with Variable-Frequency Controllers: Ratings, characteristics, and features coordinated with and approved by controller manufacturer.
 - 1. Windings: Copper magnet wire with moisture-resistant insulation varnish, designed and tested to resist transient spikes, high frequencies, and short time rise pulses produced by pulse-width-modulated inverters.
 - 2. Energy-and Premium-Efficient Motors: Class B temperature rise; Class F insulation.
 - 3. Inverter-Duty Motors: Class F temperature rise; Class H insulation.

4. Thermal Protection: Comply with NEMA MG 1 requirements for thermally protected motors.
5. Provide grounding rings.

2.05 SINGLE-PHASE MOTORS

- A. Motors larger than 1/20 hp shall be one of the following, to suit starting torque and requirements of specific motor application:
 1. Permanent-split capacitor.
 2. Split phase.
 3. Capacitor start, inductor run.
 4. Capacitor start, capacitor run.
- B. Multispeed Motors: Variable-torque, permanent-split-capacitor type.
- C. Bearings: Pre-lubricated, antifriction ball bearings or sleeve bearings suitable for radial and thrust loading.
- D. Motors 1/20 HP and Smaller: Shaded-pole type.
- E. Thermal Protection: Internal protection to automatically open power supply circuit to motor when winding temperature exceeds a safe value calibrated to temperature rating of motor insulation. Thermal-protection device shall automatically reset when motor temperature returns to normal range.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 23 05 53
IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART-1 GENERAL

1.01 SUMMARY

Section Includes:

1. Equipment labels.
2. Warning signs and labels.
3. Pipe labels.
4. Warning tags.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For color, letter style, and graphic representation required for each identification material and device.
- C. Equipment Label Schedule: Include a listing of all equipment to be labeled with the proposed content for each label.

PART 2 - PRODUCTS

2.01 EQUIPMENT LABELS

- A. Metal Labels for Equipment:
 1. Manufacturers: Subject to compliance with requirements:
 - a. Craftmark Pipe Markers
 - b. Kolbi Pipe Marker Co.
 - c. Marking Services, Inc.
 - d. Seton Identification Products
 2. Letter Color: Black
 3. Background Color: White
 4. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
 5. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches; 1/2 inch for viewing distances up to 72 inches; and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-quarters the size of principal lettering.
 6. Fasteners: Stainless-steel rivets.
 7. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- B. Label Content: Include equipment's Drawing designation or unique equipment number.
- C. Equipment Label Schedule: For each item of equipment to be labeled, on 8-1/2-by-11-inch bond paper. Tabulate equipment identification number, and identify Drawing numbers where equipment is indicated (plans, details, and schedules) and the Specification Section number and title where equipment is specified. Equipment schedule shall be included in operation and maintenance data.

2.02 WARNING SIGNS AND LABELS

- A. Manufacturers: Subject to compliance with requirements:
 1. Craftmark Pipe Markers
 2. Kolbi Pipe Marker Co.
 3. Marking Services, Inc
 4. Seton Identification Products
- B. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, and having predrilled holes for attachment hardware.
- C. Letter Color: Black
- D. Background Color: Yellow
- E. Maximum Temperature: Able to withstand temperatures up to 160 deg F

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- F. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch
- G. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-quarters the size of principal lettering.
- H. Fasteners: Stainless-steel rivets.
- I. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- J. Label Content: Include caution and warning information plus emergency notification instructions.

2.03 PIPE LABELS

- A. Manufacturers: Subject to compliance with requirements:
 - 1. Craftmark Pipe Markers
 - 2. Kolbi Pipe Marker Co.
 - 3. Marking Services, Inc
 - 4. Seton Identification Products
- B. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction according to ASME A13.1.
- C. Pretensioned Pipe Labels: Pre-coiled, semi-rigid plastic formed to partially cover circumference of pipe and to attach to pipe without fasteners or adhesive.
- D. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.
- E. 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.

2.04 WARNING TAGS

- A. Description: Preprinted or partially preprinted accident-prevention tags of plasticized card stock with matte finish suitable for writing.
 - 1. Size: 3 by 5-1/4 inches minimum.
 - 2. Fasteners: Brass grommet and wire.
 - 3. Nomenclature: Large-size primary caption such as "DANGER," "CAUTION," or "DO NOT OPERATE."
 - 4. Color: Safety-yellow background with black lettering.

PART 3 - EXECUTION

3.01 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.

3.02 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.

3.03 EQUIPMENT LABEL INSTALLATION

- A. Install or permanently fasten labels on each major item of mechanical equipment.
- B. Locate equipment labels where accessible and visible.

3.04 PIPE LABEL INSTALLATION

- A. Piping Color coding: Painting of piping in specified in Section 0099600 "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 and on both sides of through walls, floors, ceilings, and inaccessible enclosures.

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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. Refrigerant Piping: Black letters on a safety-orange background.

3.05 WARNING-TAG INSTALLATION

- A. Write required message on, and attach warning tags to, equipment and other items where required.

END OF SECTION

SECTION 23 05 93

TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Balancing Air Systems:
 - a. Building general exhaust systems
 - 2. Pre-demolition air flow survey of all supply, return and exhaust outlets and inlets connected to existing RTUs and associated exhaust fans.
 - 3. Testing, adjusting, and balancing existing RTUs & an exhaust fan.
 - 4. Control System Verification

1.02 DEFINITIONS

- A. AABC: Associated Air Balance Council.
- B. BAS: Building automation systems.
- C. NEBB: National Environmental Balancing Bureau.
- D. TAB: Testing, adjusting, and balancing.
- E. TABB: Testing, Adjusting, and Balancing Bureau.
- F. TAB Specialist: An independent entity meeting qualifications to perform TAB work.
- G. TDH: Total dynamic head.

1.03 INFORMATIONAL SUBMITTALS

- A. Qualification Data: Within 30 days of Contractor's Notice to Proceed, submit documentation that the TAB specialist and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.
- B. Contract Documents Examination Report: Within 30 days of Contractor's Notice to Proceed, submit the Contract Documents review report as specified in Part 3.
- C. Strategies and Procedures Plan: Within 30 days of Contractor's Notice to Proceed, submit TAB strategies and step-by-step procedures as specified in "Preparation" Article.
- D. System Readiness Checklists: Within 60 days of Contractor's Notice to Proceed, submit system readiness checklists as specified in "Preparation" Article.
- E. Examination Report: Submit a summary report of the examination review required in "Examination" Article.
- F. Certified TAB reports.
- G. Sample report forms.
- H. Instrument calibration reports, to include the following:
 - 1. Instrument type and make.
 - 2. Serial number.
 - 3. Application.
 - 4. Dates of use.
 - 5. Dates of calibration.

1.04 QUALITY ASSURANCE

- A. TAB Specialists Qualifications: Certified by AABC or NEBB or TABB.
 - 1. TAB Field Supervisor: Employee of the TAB specialist and certified by AABC or NEBB or TABB.
 - 2. TAB Technician: Employee of the TAB specialist and certified by AABC or NEBB or TABB as a TAB technician.
- B. Instrumentation Type, Quantity, Accuracy, and Calibration: Comply with requirements in ASHRAE 111, Section 4, "Instrumentation."
- C. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 7.2.2 – "Air Balancing"

- D. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6.7.2.3 - "System Balancing."

1.05 FIELD CONDITIONS

- A. Partial Owner Occupancy: Owner may occupy completed areas of building before Substantial Completion. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems designs that may preclude proper TAB of systems and equipment.
- B. Examine installed systems for balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are applicable for intended purpose and are accessible.
- C. Examine the approved submittals for HVAC systems and equipment.
- D. Examine design data including HVAC system descriptions, statements of design assumptions for environmental conditions and systems output, and statements of philosophies and assumptions about HVAC system and equipment controls.
- E. Examine equipment performance data including fan curves.
 - 1. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.
 - 2. Calculate system-effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from the conditions used to rate equipment performance. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," or in SMACNA's "HVAC Systems - Duct Design." Compare results with the design data and installed conditions.
- F. Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.
- G. Examine test reports specified in individual system and equipment Sections.
- H. Examine HVAC equipment and verify that bearings are greased, belts are aligned and tight, filters are clean, and equipment with functioning controls is ready for operation.
- I. Examine operating safety interlocks and controls on HVAC equipment.
- J. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.02 PREPARATION

- A. Prepare a TAB plan that includes the following:
 - 1. Equipment and systems to be tested.
 - 2. Strategies and step-by-step procedures for balancing the systems.
 - 3. Instrumentation to be used.
 - 4. Sample forms with specific identification for all equipment.
- B. Perform system-readiness checks of HVAC systems and equipment to verify system readiness for TAB work. Include, at a minimum, the following:
 - 1. Airside:
 - a. Verify that leakage and pressure tests on air distribution systems have been satisfactorily completed.
 - b. Duct systems are complete with terminals installed.
 - c. Volume, smoke, and fire dampers are open and functional.

- d. Clean filters are installed.
- e. Fans are operating, free of vibration, and rotating in correct direction.
- f. Variable-frequency controllers' startup is complete and safeties are verified.
- g. Automatic temperature-control systems are operational.
- h. Suitable access to balancing devices and equipment is provided.

3.03 GENERAL PROCEDURES FOR TESTING AND BALANCING

- A. Perform testing and balancing procedures on each system according to the procedures contained NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems", and SMACNA's "HVAC Systems - Testing, Adjusting, and Balancing" and in this Section.
- B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.
 - 1. After testing and balancing, install test ports and duct access doors that comply with requirements in Section 23 33 00 "Air Duct Accessories."
 - 2. Install and join new insulation that matches removed materials. Restore insulation, coverings, vapor barrier, and finish according to Section 23 07 13 "Duct Insulation," Section 23 07 16 "HVAC Equipment Insulation," and Section 23 07 19 "HVAC Piping Insulation."
- C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.
- D. Take and report testing and balancing measurements in inch-pound (IP) units.
- E. Balancing shall achieve design air and hydronic flow rates, within specified tolerances at terminal points, including air outlets, inlets and coil flow rates. Flow rates at fans and pumps shall be within indicated tolerances from flows indicated on Drawings. Where supply and return air fans of air handling units are of variable air volume (VAV) operation type, adjust both fans for similar control ranges. Transfer airflow direction shall be in accordance with Drawings in all modes of operation and flow shall be measured, where possible, rather than mathematically derived from supply, return and exhaust flows.
- F. Verify that all controls and final control elements, including valves, louvers, dampers and terminal boxes, operate as they are intended and in sequence specified. Report all device failures in preliminary reports submitted every two (2) weeks.
- G. Where variable or initial fixed sheaves have been provided, determine correct fan rpm, and advise mechanical installer of correct fan rpm and required fixed-sheave diameter. Final fixed sheaves shall be sized such that, upon final balancing, balancing devices at fan and in highest pressure drop duct run are open. Do not "choke" excess fan capacity to achieve final system balance; instead, decrease fan speed (rpm) as required. Check and verify fan speed (rpm) following installation of fixed sheaves.
- H. Balance fan systems with filters to design airflow with simulated dirty filter condition, as indicated on Equipment Schedules. Variable-frequency motor drives shall not be at 100 percent when filters are in clean condition.
- I. Permanently-installed flow-measuring elements may be used to accomplish balancing after accuracy has been verified with certified calibrated instruments. Record and report readouts of these instruments for all flows, even if not required for testing and balancing results.
- J. Where variable-speed fan controls have been provided, adjust and mark controls for proper setting to produce design water/airflow rates.
- K. Protect read-out instruments from damage, and return them in good working order to Mechanical installer.
- L. Only direct-flow measurements are acceptable. Do not use indirect calculations, such as a heat balance or pressure drop.
- M. Balance air system minimum and maximum damper positions for correct operation at all operating conditions.

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- N. Balance air systems in all modes of operation, including unoccupied, occupied, warm-up, economizer, equipment failure and smoke control modes.
- O. Provide required openings for duct traverses. Seal test holes in ducts with snap-in plugs. Tape is not acceptable. Repair insulation where damaged. Mark insulation or exterior of duct where readings were taken.
- P. Record test data for each motor, fan, and air system. Apply temperature, barometric and other correction factors for non-standard conditions and record in report.
- Q. In general, rate of transfer air shall be constant between maximum and minimum airflow set points for control of room relative pressure. Rate of transfer air is indicated on Drawings. Verify that transfer air rate is in conformance with indicated values, and recommend required corrective action if transfer air rate difference is greater than 10 percent between maximum and minimum airflow set points. Report deviations from Contract Documents required to accomplish design transfer air rates.
- R. Relative differential pressures between spaces are critical. Transfer air quantities and directions of flow between rooms are indicated on Contract Documents for spaces where relative space pressure differentials are required. As systems are balanced, determine actual transfer air quantities from supply, return, and exhaust air readings, and include with balancing report. Show room numbers and actual transfer air quantities to and from each room. Adjust supply/exhaust air quantities so that each space achieves proper relative pressure in both occupied and unoccupied modes. Before changing the supply or exhaust air quantities, obtain approval from Design Professional on whether supply or exhaust should be changed. Measure and record relative pressure differentials in balancing report, and identify and report any deviations.
- S. Perform complete balancing services for standby equipment. Verify and report that final terminal device flows and transfer airflows are achieved when operation is switched to standby equipment.

3.04 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

- A. Prepare test reports for fans. Cross-check the summation of required fan volumes.
- B. Submit a separate test report for each air system to design parameters.
- C. In addition, record test data where applicable on the following test forms defined in Chapter 26 of AABC National Standards for Total System Balance or equivalent NEBB or TABB forms. Modify forms as necessary to report information requested in this Section.
- D. In addition to tests and records for foregoing equipment, tests, and records are required for the following equipment:
 - 1. Preheat and cooling coils, including nameplate data and, for both design and actual conditions, the following:
 - a. Inlet and outlet air temperature and, for cooling, both wet and dry bulb temperatures on 24 inch vertical and horizontal centers at air handlers.
 - b. Air pressure drop.
 - c. Air face velocity on 24 inch vertical and horizontal centers at air handlers.
 - d. Outside air temperature.
 - 2. Air filters and air handling units, including air pressure drop across filters and entire unit.
- E. In addition to data required on AABC, NEBB or TABB forms, the following additional information is required for scheduled equipment:
 - 1. Motors: Type, amps per phase, frame number, serial number, motor kW, and calculated driven equipment input power (kW) and efficiency at final conditions.
 - 2. Fans: Blade design type such as Air Foil (AF), Backwardly Inclined (BI), Forward Curved (FC), Single Width Single Inlet (SWSI) or Double Width Double Inlet (DWDI), class and number of blades.
 - 3. Fan Systems: For systems controlled by static pressure, assure by test and recording that devices, including high-limit controls are calibrated to perform in accordance with Contract Documents, and provide design static pressure at most distant location. Furnish and coordinate static pressure set point of controls, as applicable, with the installation of BAS.

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Fans that are driven by variable-frequency drives shall be tested over their operating range.
Conduct vibration tests on VFD-driven equipment over their entire operating range.

4. Calculate, for each room, percent deviation between actual supply, exhaust and/or return air quantities and supply, return, and exhaust air quantities indicated on Drawings.
- F. Prepare schematic diagrams of systems' "as-built" duct layouts.
- G. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.
- H. Verify that motor starters are equipped with properly sized thermal protection.
- I. Check dampers for proper position to achieve desired airflow path.
- J. Check for airflow blockages.
- K. Check condensate drains for proper connections and functioning.
- L. Check for proper sealing of air-handling-unit components.

3.05 PROCEDURES FOR MOTORS

- A. Motors 1/2 HP and Larger: Test at final balanced conditions and record the following data:
 1. Manufacturer's name, model number, and serial number.
 2. Motor horsepower rating.
 3. Motor rpm.
 4. Phase and hertz.
 5. Nameplate and measured voltage, each phase.
 6. Nameplate and measured amperage, each phase.
 7. Starter size and thermal-protection-element rating.
 8. Service factor and frame size.
- B. Motors Driven by Variable-Frequency Controllers: Test manual bypass of controller to prove proper operation.

3.06 PROCEDURES FOR CONDENSING UNITS

- A. Verify proper rotation of fans.
- B. Measure entering- and leaving-air temperatures.
- C. Record fan and motor operating data.

3.07 TOLERANCES

- A. Set HVAC system's airflow rates and water flow rates within the following tolerances:
 1. Exhaust Fans and Equipment with Fans: Plus or minus 10 percent.
- B. Maintaining pressure relationships as designed shall have priority over the tolerances specified above.

3.08 FINAL REPORT

- A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.
 1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.
 2. Include a list of instruments used for procedures, along with proof of calibration.
 3. Certify validity and accuracy of field data.
- B. Final Report Contents: In addition to certified field-report data, include the following:
 1. Fan curves.
 2. Manufacturers' test data.
 3. Field test reports prepared by system and equipment installers.
 4. Other information relative to equipment performance; do not include Shop Drawings and Product Data.
- C. General Report Data: In addition to form titles and entries, include the following data:
 1. Title page.
 2. Name and address of the TAB specialist.
 3. Project name.

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4. Project location.
 5. Architect's name and address.
 6. Engineer's name and address.
 7. Contractor's name and address.
 8. Report date.
 9. Signature of TAB supervisor who certifies the report.
 10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
 11. Summary of contents including the following:
 - a. Indicated versus final performance.
 - b. Notable characteristics of systems.
 - c. Description of system operation sequence if it varies from the Contract Documents.
 12. Nomenclature sheets for each item of equipment.
 13. Data for terminal units, including manufacturer's name, type, size, and fittings.
 14. Notes to explain why certain final data in the body of reports vary from indicated values.
 15. Test conditions for fans and pump performance forms including the following:
 - a. Settings for outdoor-, return-, and exhaust-air dampers.
 - b. Conditions of filters.
 - c. Cooling coil, wet- and dry-bulb conditions.
 - d. Face and bypass damper settings at coils.
 - e. Fan drive settings including settings and percentage of maximum pitch diameter.
 - f. Settings for supply-air, static-pressure controller.
 - g. Other system operating conditions that affect performance.
- D. System Diagrams: Include schematic layouts of air and hydronic distribution systems. Present each system with single-line diagram and include the following:
1. Quantities of outdoor, supply, return, and exhaust airflows.
 2. Duct, outlet, and inlet sizes.
 3. Position of balancing devices.
- E. Air-Handling-Unit Test Reports: For air-handling units with coils, include the following:
1. Unit Data:
 - a. Unit identification.
 - b. Location.
 - c. Make and type.
 - d. Model number and unit size.
 - e. Manufacturer's serial number.
 - f. Unit arrangement and class.
 - g. Discharge arrangement.
 - h. Sheave make, size in inches, and bore.
 - i. Center-to-center dimensions of sheave and amount of adjustments in inches
 - j. Number, make, and size of belts.
 - k. Number, type, and size of filters.
 2. Motor Data:
 - a. Motor make, and frame type and size.
 - b. Horsepower and rpm.
 - c. Volts, phase, and hertz.
 - d. Full-load amperage and service factor.
 - e. Sheave make, size in inches, and bore.
 - f. Center-to-center dimensions of sheave and amount of adjustments in inches.
 3. Test Data (Indicated and Actual Values):
 - a. Total airflow rate in cfm.

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- b. Total system static pressure in inches wg.
 - c. Fan rpm.
 - d. Discharge static pressure in inches wg.
 - e. Filter static-pressure differential in inches wg.
 - f. Preheat-coil static-pressure differential in inches wg.
 - g. Cooling-coil static-pressure differential in inches wg.
 - h. Heating-coil static-pressure differential in inches wg.
 - i. Outdoor airflow in cfm.
 - j. Return airflow in cfm.
 - k. Outdoor-air damper position.
 - l. Return-air damper position.
- F. Fan Test Reports: For supply, return, and exhaust fans, include the following:
- 1. Fan Data:
 - a. System identification.
 - b. Location.
 - c. Make and type.
 - d. Model number and size.
 - e. Manufacturer's serial number.
 - f. Arrangement and class.
 - g. Sheave make, size in inches and bore.
 - h. Center-to-center dimensions of sheave and amount of adjustments in inches.
 - 2. Motor Data:
 - a. Motor make, and frame type and size.
 - b. Horsepower and rpm.
 - c. Volts, phase, and hertz.
 - d. Full-load amperage and service factor.
 - e. Sheave make, size in inches, and bore.
 - f. Center-to-center dimensions of sheave, and amount of adjustments in inches.
 - g. Number, make, and size of belts.
 - 3. Test Data (Indicated and Actual Values):
 - a. Total airflow rate in cfm.
 - b. Total system static pressure in inches wg.
 - c. Fan rpm.
 - d. Discharge static pressure in inches wg.
 - e. Suction static pressure in inches wg.
- G. Condensing Units:
- 1. Unit Data:
 - a. Unit identification.
 - b. Location.
 - c. Service.
 - d. Make and size.
 - e. Model number and serial number.
- H. Instrument Calibration Reports:
- 1. Report Data:
 - a. Instrument type and make.
 - b. Serial number.
 - c. Application.
 - d. Dates of use.
 - e. Dates of calibration.

3.09 VERIFICATION OF TAB REPORT

- A. The TAB specialist's test and balance engineer shall conduct the inspection in the presence of Construction Manager, and commissioning authority.
- B. Construction Manager, and Commissioning authority shall randomly select measurements, documented in the final report, to be rechecked. Rechecking shall be limited to either 10 percent of the total measurements recorded or the extent of measurements that can be accomplished in a normal 8-hour business day.
- C. If rechecks yield measurements that differ from the measurements documented in the final report by more than the tolerances allowed, the measurements shall be noted as "FAILED."
- D. If the number of "FAILED" measurements is greater than 10 percent of the total measurements checked during the final inspection, the testing and balancing shall be considered incomplete and shall be rejected.
- E. If TAB work fails, proceed as follows:
 - 1. TAB specialists shall recheck all measurements and make adjustments. Revise the final report and balancing device settings to include all changes; resubmit the final report and request a second final inspection.
 - 2. If the second final inspection also fails, Owner may contract the services of another TAB specialist to complete TAB work according to the Contract Documents and deduct the cost of the services from the original TAB specialist's final payment.
 - 3. If the second verification also fails, Architect may contact AABC Headquarters regarding the AABC National Performance Guaranty.
- F. Prepare test and inspection reports.

3.10 ADDITIONAL TESTS

- A. Within 90 days of completing TAB, perform additional TAB to verify that balanced conditions are being maintained throughout and to correct unusual conditions.
- B. Seasonal Periods: If initial TAB procedures were not performed during near-peak summer and winter conditions, perform additional TAB during near-peak summer and winter conditions.

END OF SECTION

**SECTION 23 07 13
DUCT INSULATION**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes insulating the following duct services:
 - 1. Outdoor, exposed supply and return.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include thermal conductivity, water-vapor permeance thickness, and jackets (both factory- and field-applied if any).
- B. Provide lowest VOC content and lowest emitting adhesives unless otherwise directed. The materials used on project are to be "sustainable" as defined by the EPA comprehensive procurement guideline (CPG) Program.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.
- B. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products according to ASTM E 84, by a testing agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing agency.

~~1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.~~

2.1. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.05 COORDINATION

- A. Coordinate sizes and locations of supports, hangers, and insulation shields specified in "Hangers and Supports for HVAC Piping and Equipment" or appropriate SMACNA details.

- B. Coordinate clearance requirements with duct Installer for duct insulation application. Before preparing ductwork Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

~~C. Coordinate installation and testing of heat tracing.~~

1.06 SCHEDULING

- A. Schedule insulation application after pressure testing systems and, where required, after installing and testing heat tracing. Insulation application may begin on segments that have satisfactory pressure test results.
- B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.01 INSULATION MATERIALS

- A. Comply with requirements in "Duct Insulation Schedule, General," "Indoor Duct and Plenum Insulation Schedule," and "Aboveground, Outdoor Duct and Plenum Insulation Schedule" articles for where insulating materials shall be applied.
- B. Products shall not contain asbestos, lead, mercury, or mercury compounds.
- C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.
- D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.
- E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.

~~G.F.~~ Mineral-Fiber Blanket Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II and ASTM C 1290, Type II factory laminated to FRK vapor retarder facing. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CertainTeed Corporation.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. Knauf Insulation.
 - d. Owens Corning.

~~H.G.~~ Mineral-Fiber Board Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type IA or Type IB. For duct and plenum applications, provide insulation with factory-applied ASJ. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CertainTeed Corporation.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. Knauf Insulation.
 - d. Owens Corning.

2.02 FIRE-RATED INSULATION SYSTEMS

- ~~A. Fire-Rated Board: Structural-grade, press-molded, xonolite calcium silicate, fireproofing board suitable for operating temperatures up to 1700 deg F (927 deg C). Comply with ASTM C 656, Type II, Grade 6. Tested and certified to provide a 2-hour fire rating by an NRTL acceptable to authorities having jurisdiction.~~
- ~~1. Manufacturers: Subject to compliance with requirements, provide products by the following:~~
- ~~a. CertainTeed Corporation.~~
- ~~b. Johns Manville; a Berkshire Hathaway company.~~
- ~~c. Nelson Firestop; a brand of Emerson Industrial Automation.~~
- ~~d. Unifrax Corporation.~~
- ~~B. Fire-Rated Blanket: High-temperature, flexible, blanket insulation with FSK jacket that is tested and certified to provide a 2-hour fire rating by an NRTL acceptable to authorities having jurisdiction.~~
- ~~1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:~~
- ~~a. CertainTeed Corporation.~~
- ~~b. Johns Manville; a Berkshire Hathaway company.~~
- ~~c. Nelson Firestop; a brand of Emerson Industrial Automation.~~
- ~~d. Unifrax Corporation.~~

2.032.02 ADHESIVES

- A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.
- B. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- a. Childers Brand; H. B. Fuller Construction Products.
- b. Eagle Bridges - Marathon Industries.
- c. Foster Brand; H. B. Fuller Construction Products.
- C. ~~ASJ Adhesive, and~~ FSK Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- a. Childers Brand; H. B. Fuller Construction Products.
- b. Eagle Bridges - Marathon Industries.
- c. Foster Brand; H. B. Fuller Construction Products.

~~D. PVC Jacket Adhesive: Compatible with PVC jacket.~~

2.042.03 MASTICS

- A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-PRF-19565C, Type II.
1. VOC Content: 300 g/L or less.
2. Low-Emitting Materials: Verify mastic coatings 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. Vapor Barrier Mastic: Water based; suitable for indoor use on below ambient services.~~

~~C.—~~

~~1. Water Vapor Permeance: ASTM E 96/E 96M, Procedure B, 0.013 perm at 43-mil dry film thickness.~~

~~2. Service Temperature Range: Minus 20 to plus 180 deg F.~~

~~3. Solids Content: ASTM D 1644, 58 percent by volume and 70 percent by weight.~~

~~4. Color: White.~~

~~D. Vapor Barrier Mastic: Solvent based; suitable for indoor use on below ambient services.~~

~~E.—~~

~~1. Water Vapor Permeance: ASTM F 1249, 0.05 perm at 35-mil dry film thickness.~~

~~2. Service Temperature Range: 0 to 180 deg F.~~

~~3. Solids Content: ASTM D 1644, 44 percent by volume and 62 percent by weight.~~

~~4. Color: White.~~

~~F. Vapor Barrier Mastic: Solvent based; suitable for outdoor use on below ambient services.~~

~~G.B.—~~

~~1. Water-Vapor Permeance: ASTM F 1249, 0.05 perm at 30-mil dry film thickness.~~

~~2. Service Temperature Range: Minus 50 to plus 220 deg F.~~

~~3. Solids Content: ASTM D 1644, 33 percent by volume and 46 percent by weight.~~

~~4. Color: White.~~

~~H. Breather Mastic: Water based; suitable for indoor and outdoor use on above ambient services.~~

~~I.—~~

~~1. Water Vapor Permeance: ASTM F 1249, 1.8 perms at 0.0625-inch dry film thickness.~~

~~2. Service Temperature Range: Minus 20 to plus 180 deg F.~~

~~3. Solids Content: 60 percent by volume and 66 percent by weight.~~

~~4. Color: White.~~

2.052.04 LAGGING ADHESIVES

A. Description: Comply with MIL-A-3316C, Class I, Grade A and shall be compatible with insulation materials, jackets, and substrates.

1. Adhesives shall have a VOC content of 50 g/L or less.

2. Fire-resistant, water-based lagging adhesive and coating for use indoors to adhere fire-resistant lagging cloths over duct insulation.

3. Service Temperature Range: 0 to plus 180 deg F.

4. Color: White.

2.062.05 SEALANTS

A. FSK and Metal Jacket Flashing Sealants:

1. Materials shall be compatible with insulation materials, jackets, and substrates.

2. Fire- and water-resistant, flexible, elastomeric sealant.

3. Service Temperature Range: Minus 40 to plus 250 deg F.

4. Color: Aluminum.

5. Sealants shall have a VOC content of 420 g/L or less.

2.07 FACTORY-APPLIED JACKETS

~~A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:~~

- ~~1. ASJ: White, kraft paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C 1136, Type I.~~
- ~~2. ASJ-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I.~~
- ~~3. FSP Jacket: Aluminum-foil, fiberglass-reinforced scrim with polyethylene backing; complying with ASTM C 1136, Type II.~~

2.082.06 FIELD-APPLIED JACKETS

G.A. Metal Jacket:

1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. ITW Insulation Systems; Illinois Tool Works, Inc.
 - b. Childers Brand; H.B. Fuller Construction Products.
 - c. Johns Manville; a Berkshire Hathaway company.
2. Aluminum Jacket: Comply with ASTM B 209, Alloy 3003, 3005, 3105, or 5005, Temper H-14.
 - a. Sheet and roll stock ready for shop or field sizing.
 - b. Finish and thickness are indicated in field-applied jacket schedules.
 - c. Moisture Barrier for Indoor Applications: 3-mil- thick, heat-bonded polyethylene and kraft paper thick polysurlyn.
 - d. Moisture Barrier for Outdoor Applications: 3-mil- (0.075-mm-) thick, heat-bonded polyethylene and kraft paper thick polysurlyn.

~~3. Stainless Steel Jacket: ASTM A 167 or ASTM A 240/A 240M. Use this product in saline environment or if there is the possibility for heavy corrosion within 2 years of installation.~~

- ~~a. Sheet and roll stock ready for shop or field sizing.~~
- ~~b. Material, finish, and thickness are indicated in field-applied jacket schedules.~~
- ~~c. Moisture Barrier for Indoor Applications: 3-mil- thick, heat-bonded polyethylene and kraft paper thick polysurlyn.~~
- ~~d. Moisture Barrier for Outdoor Applications: 3-mil- (0.075-mm-) thick, heat-bonded polyethylene and kraft paper thick polysurlyn.~~

2.092.07 TAPES

~~A. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C 1136.~~

- ~~1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Avery Dennison Corporation, Specialty Tapes Division.
 - b. Ideal Tape Co., Inc., an American Biltrite Company.
 - c. Knauf Insulation.~~
- ~~2. Width: 3 inches.~~
- ~~3. Thickness: 11.5 mils.~~
- ~~4. Adhesion: 90 ounces force/inch in width.~~
- ~~5. Elongation: 2 percent.~~
- ~~6. Tensile Strength: 40 lbf/inch in width.~~
- ~~7. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.~~

B.A. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Avery Dennison Corporation, Specialty Tapes Division.
 - b. Ideal Tape Co., Inc., an American Biltrite Company.
 - c. Knauf Insulation.
2. Width: 2 inches.
3. Thickness: 3.7 mils.

4. Adhesion: 100 ounces force/inch in width.
5. Elongation: 5 percent.
6. Tensile Strength: 34 lbf/inch in width.

2.102.08 SECUREMENTS

A. Bands:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ITW Insulation Systems; Illinois Tool Works, Inc.
 - b. RPR Products, Inc.
 - c. ULINE
2. Stainless Steel: ASTM A 167 or ASTM A 240/A 240M, Type 304; 3/4 inch (19 mm) wide with wing seal or closed seal.

~~3. Springs: Twin spring set constructed of stainless steel with ends flat and slotted to accept metal bands. Spring size determined by manufacturer for application.~~

B. Insulation Pins and Hangers:

1. Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch-diameter shank, length to suit depth of insulation indicated.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) AGM Industries, Inc.
 - 2) Gemco.
 - 3) Hardcast; a Carlisle Company.
 - 4) Midwest Fasteners, Inc.
 - 5) Nelson Stud Welding.
2. Metal, Adhesively Attached, Perforated-Base Insulation Hangers: Baseplate welded to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) AGM Industries, Inc.
 - 2) Gemco.
 - 3) Midwest Fasteners, Inc.

- b. Baseplate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
 - c. Spindle: Aluminum, fully annealed, 0.106-inch-diameter shank, length to suit depth of insulation indicated.
 - d. Adhesive: Recommended by hanger manufacturer. Product with demonstrated capability to bond insulation hanger securely to substrates indicated without damaging insulation, hangers, and substrates.
3. Self-Sticking-Base Insulation Hangers: Baseplate welded to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:
- a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - 1) AGM Industries, Inc.
 - 2) Gemco.
 - 3) Hardcast; a Carlisle Company.
 - b. Baseplate: Galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
 - c. Spindle: Aluminum, fully annealed, 0.106-inch- diameter shank, length to suit depth of insulation indicated.
 - d. Adhesive-backed base with a peel-off protective cover.
4. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch-thick, aluminum sheet, with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.
- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) AGM Industries, Inc.
 - 2) Gemco.
 - 3) Midwest Fasteners, Inc.
 - 4) Nelson Stud Welding.
 - b. Protect ends with capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap in exposed locations.
- C. Staples: Outward-clinching insulation staples, nominal 3/4-inch- wide, stainless steel or Monel.

2.112.09 CORNER ANGLES

- A. Aluminum Corner Angles: 0.040 inch thick, minimum 1 by 1 inch, aluminum according to ASTM B 209 (ASTM B 209M), Alloy 3003, 3005, 3105, or 5005; Temper H-14.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of insulation application.
 - 1. Verify that systems to be insulated have been tested and are free of defects.
 - 2. Verify that surfaces to be insulated are clean and dry.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

3.03 GENERAL INSTALLATION REQUIREMENTS

- A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of ducts and fittings.
- B. Install insulation materials, vapor barriers or retarders, jackets, and thicknesses required for each item of duct system as specified in insulation system schedules.

- C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.
- D. Install insulation with longitudinal seams at top and bottom of horizontal runs.
- E. Install multiple layers of insulation with longitudinal and end seams staggered.
- F. Keep insulation materials dry during application and finishing.
- G. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.
- H. Install insulation with least number of joints practical.
- I. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
 - 1. Install insulation continuously through hangers and around anchor attachments.
 - 2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
 - 3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
- J. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.
- K. Install insulation with factory-applied jackets as follows:
 - 1. Draw jacket tight and smooth.
 - 2. Cover circumferential joints with 3-inch- wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.
 - 3. Overlap jacket longitudinal seams at least 1-1/2 inches. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 2 inches o.c.
 - a. For below ambient services, apply vapor-barrier mastic over staples.
 - 4. Cover joints and seams with tape, according to insulation material manufacturer's written instructions, to maintain vapor seal.
 - 5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to duct flanges and fittings.
- L. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.
- M. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.
- N. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

3.04 PENETRATIONS

- ~~A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.~~
 - ~~1. Seal penetrations with flashing sealant.~~
 - ~~2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.~~
 - ~~3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches below top of roof flashing.~~
 - ~~4. Seal jacket to roof flashing with flashing sealant.~~

B.A. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.

1. Seal penetrations with flashing sealant.
2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches.
4. Seal jacket to wall flashing with flashing sealant.

~~C. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Terminate insulation at fire damper sleeves for fire-rated wall and partition penetrations. Externally insulate damper sleeves to match adjacent insulation and overlap duct insulation at least 2 inches.~~

~~1. Comply with requirements for "Penetration Firestopping."~~

~~D. Insulation Installation at Floor Penetrations:~~

~~1. Duct: For penetrations through fire-rated assemblies, terminate insulation at fire damper sleeves and externally insulate damper sleeve beyond floor to match adjacent duct insulation. Overlap damper sleeve and duct insulation at least 2 inches.~~

~~2. Seal penetrations through fire-rated assemblies. Comply with requirements for~~

~~3. "Penetration Firestopping."~~

3.05 INSTALLATION OF MINERAL-FIBER INSULATION

- A. Blanket Insulation Installation on Ducts and Plenums: Secure with adhesive and insulation pins.
1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 100 percent coverage of duct and plenum surfaces.
 2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.
 3. Install either capacitor-discharge-weld pins and speed washers or cupped-head, capacitor-discharge-weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:
 - a. On duct sides with dimensions 18 inches and smaller, place pins along longitudinal centerline of duct. Space 3 inches maximum from insulation end joints, and 16 inches o.c.
 - b. On duct sides with dimensions larger than 18 inches, place pins 16 inches o.c. each way, and 3 inches maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing.
 - c. Pins may be omitted from top surface of horizontal, rectangular ducts and plenums.
 - d. Do not overcompress insulation during installation.
 - e. Impale insulation over pins and attach speed washers.
 - f. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.
 4. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches from one edge and one end of insulation segment. Secure laps to adjacent insulation section with 1/2-inch outward-clinching staples, 1 inch o.c. Install vapor barrier consisting of factory- or field-applied jacket, adhesive, vapor-barrier mastic, and sealant at joints, seams, and protrusions.
 - a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-barrier seal.
 - b. Install vapor stops for ductwork and plenums operating below 50 deg F at 18-foot intervals. Vapor stops shall consist of vapor-barrier mastic applied in a Z-shaped

- pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to two times the insulation thickness, but not less than 3 inches.
5. Overlap unfaced blankets a minimum of 2 inches on longitudinal seams and end joints. At end joints, secure with steel bands spaced a maximum of 18 inches o.c.
 6. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Install insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
 7. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6-inch-wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches o.c.
- B. Board Insulation Installation on Ducts and Plenums: Secure with adhesive and insulation pins.
1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 100 percent coverage of duct and plenum surfaces.
 2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.
 3. Install either capacitor-discharge-weld pins and speed washers or cupped-head, capacitor-discharge-weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:
 - a. On duct sides with dimensions 18 inches and smaller, place pins along longitudinal centerline of duct. Space 3 inches maximum from insulation end joints, and 16 inches o.c.
 - b. On duct sides with dimensions larger than 18 inches, space pins 16 inches o.c. each way, and 3 inches maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing.
 - c. Pins may be omitted from top surface of horizontal, rectangular ducts and plenums.
 - d. Do not overcompress insulation during installation.
 - e. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.
 4. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches from one edge and one end of insulation segment. Secure laps to adjacent insulation section with 1/2-inch outward-clinching staples, 1 inch o.c. Install vapor barrier consisting of factory- or field-applied jacket, adhesive, vapor-barrier mastic, and sealant at joints, seams, and protrusions.
 - a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-barrier seal.
 - b. Install vapor stops for ductwork and plenums operating below 50 deg F at 18-foot intervals. Vapor stops shall consist of vapor-barrier mastic applied in a Z-shaped pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to two times the insulation thickness, but not less than 3 inches.
 5. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Groove and score insulation to fit as closely as possible to outside and inside radius of elbows. Install insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
 6. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6-inch-wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches o.c.

3.06 FIELD-APPLIED JACKET INSTALLATION

- ~~A. Where glass-cloth jackets are indicated, install directly over bare insulation or insulation with factory-applied jackets.~~
 - ~~1. Draw jacket smooth and tight to surface with 2-inch overlap at seams and joints.~~
 - ~~2. Embed glass cloth between two 0.062-inch-thick coats of lagging adhesive.~~
 - ~~3. Completely encapsulate insulation with coating, leaving no exposed insulation.~~
- ~~B. Where FSK jackets are indicated, install as follows:~~
 - ~~1. Draw jacket material smooth and tight.~~
 - ~~2. Install lap or joint strips with same material as jacket.~~
 - ~~3. Secure jacket to insulation with manufacturer's recommended adhesive.~~
 - ~~4. Install jacket with 1-1/2-inch laps at longitudinal seams and 3-inch-wide joint strips at end joints.~~
 - ~~5. Seal openings, punctures, and breaks in vapor-retarder jackets and exposed insulation with vapor-barrier mastic.~~
- ~~C. Where PVC jackets are indicated, install with 1-inch overlap at longitudinal seams and end joints; for horizontal applications, install with longitudinal seams along top and bottom of tanks and vessels. Seal with manufacturer's recommended adhesive.~~
 - ~~1. Apply two continuous beads of adhesive to seams and joints, one bead under lap and the finish bead along seam and joint edge.~~
- D.A. Where metal jackets are indicated, install with 2-inch overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel bands 12 inches o.c. and at end joints.

3.07 FIRE-RATED INSULATION SYSTEM INSTALLATION

- ~~A. Where fire-rated insulation system is indicated, secure system to ducts and duct hangers and supports to maintain a continuous fire rating.~~
- ~~B. Insulate duct access panels and doors to achieve same fire rating as duct.~~
- ~~C. Install firestopping at penetrations through fire-rated assemblies. Fire-stop systems are specified for "Penetration Firestopping." Comply with the relevant life safety code to maintain the fire rating of the assembly.~~

3.083.07 FINISHES

- A. Do not field paint aluminum or stainless-steel jackets.

3.093.08 FIELD QUALITY CONTROL

- B.A. Perform tests and inspections.

D.B. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.103.09 DUCT INSULATION SCHEDULE, GENERAL

- A. Plenums and Ducts Requiring Insulation:
 - 1. Outdoor, exposed supply and return.
- B. Items Not Insulated:
 - 1. Fibrous-glass ducts.
 - 2. Metal ducts with duct liner of sufficient thickness to comply with energy code and ASHRAE/IESNA 90.1.
 - 3. Factory-insulated flexible ducts.
 - 4. Factory-insulated plenums and casings.
 - 5. Flexible connectors.
 - 6. Vibration-control devices.
 - 7. Factory-insulated access panels and doors.

3.113.10 ~~Duct and plenum insulation schedules in first two articles below specify commonly used insulation materials and thicknesses for each service type. LEED Prerequisite EA 2 requires that duct insulation R-value comply with ASHRAE/IESNA 90.1 tables titled "Minimum Duct~~

~~Insulation R-Value, Cooling and Heating Only Supply Ducts and Return Ducts” and
“Minimum Duct Insulation R-Value, Combined Heating and Cooling Supply Ducts and Return
Ducts.” Not all materials and thicknesses may be suitable for a specific project~~ **DUCT AND**

PLENUM INSULATION SCHEDULE

A.

SHEET METAL DUCTWORK INSULATION SCHEDULE					
		PLENUM OR DUCT LOCATION	INSULATION		JACKET
PLENUM OR DUCTWORK TYPE	INSULATION TYPE	OUTDOOR	DENSITY (Lb/Cu.Ft.)	THICKNESS (INCHES)	
Rectangular Supply and Return Ductwork in Mechanical Rooms, All Exposed Areas and Duct Shafts	Rigid Mineral Fiber Board	X	{3} {48} [6] {96}	{1.5} {38} [2] {50}	All-Service * Corrugated Rolled Aluminum
Outside Air Intake, Relief and Exhaust Ductwork and Plenums	Rigid Mineral Fiber Board	X	[6] {96} [6] {96}	[2] {50} [2] {50}	All-Service * Corrugated Rolled Aluminum
Round Supply and Outside Air Ductwork, and Return Ductwork in Mechanical Rooms	Mineral Fiber Wrap	X	{1} {16} [1] {16}	[2] {50} [2] {50}	All-Service * Corrugated Rolled Aluminum
* = Alternate.					

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END OF SECTION

SECTION 23 07 19
HVAC PIPING INSULATION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes insulating the following HVAC piping systems:
 - 1. Condensate drain piping, indoors.
 - 2. Refrigerant suction and gas piping, indoors and outdoors.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include thermal conductivity, water-vapor permeance thickness, and jackets (both factory and field applied if any).
- B. Material Test Reports: From a qualified testing agency acceptable to authorities having jurisdiction indicating, interpreting, and certifying test results for compliance of insulation materials, sealers, attachments, cements, and jackets, with requirements indicated. Include dates of tests and test methods employed.
- C. Field quality-control reports.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.
- B. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products according to ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing agency.
 - 1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
 - 2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.05 COORDINATION

- A. Coordinate clearance requirements with piping Installer for piping insulation application. Before preparing piping Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

1.06 SCHEDULING

- A. Schedule insulation application after pressure testing systems and, where required, after installing and testing heat tracing. Insulation application may begin on segments that have satisfactory test results.
- B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.01 INSULATION MATERIALS

- A. Products shall not contain asbestos, lead, mercury, or mercury compounds.

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- B. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.
- C. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.
- D. Flexible Elastomeric Insulation: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials. It shall have maximum k-factor of 0.28 at 75°F mean temperature, and water vapor permeance of 0.05 perms.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Armacell LLC.
 - b. K-Flex USA
 - c. Aeroflex.

2.02 INSULATING CEMENTS

- A. Mineral-Fiber Insulating Cement: Comply with ASTM C 195.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Ramco Insulation, Inc.
 - b. Johns Manville
 - c. GLT Products

2.03 ADHESIVES

- A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.
- B. Flexible Elastomeric Adhesive: Comply with MIL-A-24179A, Type II, Class I.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Armacell LLC.
 - b. Foster Brand; H. B. Fuller Construction Products.
 - c. K-flex

2.04 MASTICS

- A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-PRF-19565C, Type II.
- B. Vapor-Barrier Mastic: Solvent based; suitable for indoor use on below-ambient services.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Childers Brand; H. B. Fuller Construction Products.
 - b. Foster Brand; H. B. Fuller Construction Products.
 - c. Eagle Bridges – Marathon Industries
 - 2. Water-Vapor Permeance: ASTM F 1249, 0.05 perm at 35-mildry film thickness.
 - 3. Service Temperature Range: 0 to 180 deg.
 - 4. Solids Content: ASTM D 1644, 44 percent by volume and 62 percent by weight.
 - 5. Color: White.
- C. Vapor-Barrier Mastic: Solvent based; suitable for outdoor use on below-ambient services.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Childers Brand; H. B. Fuller Construction Products.
 - b. Foster Brand; H. B. Fuller Construction Products.
 - c. Eagle Bridges – Marathon Industries

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2. Water-Vapor Permeance: ASTM F 1249, 0.05 perm at 30-mildry film thickness.
3. Service Temperature Range: Minus 50 to plus 220 deg F.
4. Solids Content: ASTM D 1644, 33 percent by volume and 46 percent by weight.
5. Color: White.

2.05 TAPES

- A. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. 3M Industrial Adhesives and Tapes Division.
 - b. Avery Dennison Corporation, Specialty Tapes Division.
 - c. Knauf Insulation.
 2. Width: 2 inches.
 3. Thickness: 3.7 mils.
 4. Adhesion: 100 ounces force/inch in width.
 5. Elongation: 5 percent.
 6. Tensile Strength: 34 lbf/inch in width.

2.06 SECUREMENTS

- A. Bands:
 1. Aluminum: ASTM B 209, Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020 inch thick, 3/4 inch wide with wing seal or closed seal.
- B. Staples: Outward-clinching insulation staples, nominal 3/4-inch-wide, stainless steel or Monel.
- C. Wire: 0.062-inch soft-annealed, stainless steel.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of insulation application.
 1. Verify that systems to be insulated have been tested and are free of defects.
 2. Verify that surfaces to be insulated are clean and dry.
 3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application, including but not limited to grease, dirt, rust and scale.
- B. Coordinate insulation installation with the trade installing heat tracing. Comply with requirements for heat tracing that apply to insulation.
- C. Mix insulating cements with clean potable water; if insulating cements are to be in contact with stainless-steel surfaces, use demineralized water.

3.03 GENERAL INSTALLATION REQUIREMENTS

- A. Insulate piping after it has been pressure tested and approved by the Owner or Owner's Representative.
- B. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of piping including fittings, valves, and specialties.
- C. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of pipe system as specified in insulation system schedules.
- D. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.
- E. Install insulation with longitudinal seams at top and bottom of horizontal runs.

- F. Do not use staples in vapor barrier jackets.
- G. Install multiple layers of insulation with longitudinal and end seams staggered.
- H. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.
- I. Keep insulation materials dry during application and finishing.
- J. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.
- K. Install insulation with least number of joints practical.
- L. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
 - 1. Install insulation continuously through hangers and around anchor attachments.
 - 2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
 - 3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
 - 4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.
- M. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.
- N. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.
- O. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.
- P. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints. Insulation and vapor barrier on ductwork shall be continuous including at connections of new insulation to existing insulation.
- Q. Provide new piping insulation to repair all damaged piping insulation with new materials. Insulation and vapor barrier on piping shall be continuous including at connections of new insulations to existing insulation.
- R. For above-ambient services, do not install insulation to the following:
 - 1. Vibration-control devices.
 - 2. Testing agency labels and stamps.
 - 3. Nameplates and data plates.
 - 4. Manholes.
 - 5. Handholes.
 - 6. Cleanouts.

3.04 PENETRATIONS

- A. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.
 - 1. Seal penetrations with flashing sealant.
 - 2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
 - 3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches.

4. Seal jacket to wall flashing with flashing sealant.
- B. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.
- C. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions.
 1. Comply with requirements in for firestopping and fire-resistive joint sealers.

3.05 GENERAL PIPE INSULATION INSTALLATION

- A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.
- B. Insulation Installation on Fittings, Valves, Strainers, Flanges, and Unions:
 1. Install insulation over fittings, valves, strainers, flanges, unions, and other specialties with continuous thermal and vapor-retarder integrity unless otherwise indicated.
 2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
 3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
 4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing-box studs, bolts, and nuts. Fill joints, seams, and irregular surfaces with insulating cement.
 5. Insulate strainers using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Fill joints, seams, and irregular surfaces with insulating cement. Insulate strainers so strainer basket flange or plug can be easily removed and replaced without damaging the insulation and jacket. Provide a removable reusable insulation cover. For below-ambient services, provide a design that maintains vapor barrier.
 6. Insulate flanges and unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.
 7. Cover segmented insulated surfaces with a layer of finishing cement and coat with a mastic. Install vapor-barrier mastic for below-ambient services and a breather mastic for above-ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.
 8. For services not specified to receive a field-applied jacket except for flexible elastomeric and polyolefin, install fitted PVC cover over elbows, tees, strainers, valves, flanges, and unions. Terminate ends with PVC end caps. Tape PVC covers to adjoining insulation facing using PVC tape.
 9. Stencil or label the outside insulation jacket of each union with the word "union." Match size and color of pipe labels.

- C. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.
- D. Install removable insulation covers at locations indicated. Installation shall conform to the following:
 - 1. Make removable flange and union insulation from sectional pipe insulation of same thickness as that on adjoining pipe. Install same insulation jacket as adjoining pipe insulation.
 - 2. When flange and union covers are made from sectional pipe insulation, extend insulation from flanges or union long at least two times the insulation thickness over adjacent pipe insulation on each side of flange or union. Secure flange cover in place with stainless-steel or aluminum bands. Select band material compatible with insulation and jacket.
 - 3. Construct removable valve insulation covers in same manner as for flanges, except divide the two-part section on the vertical center line of valve body.
 - 4. When covers are made from block insulation, make two halves, each consisting of mitered blocks wired to stainless-steel fabric. Secure this wire frame, with its attached insulation, to flanges with tie wire. Extend insulation at least 2 inches over adjacent pipe insulation on each side of valve. Fill space between flange or union cover and pipe insulation with insulating cement. Finish cover assembly with insulating cement applied in two coats. After first coat is dry, apply and trowel second coat to a smooth finish.
 - 5. Unless a PVC jacket is indicated in field-applied jacket schedules, finish exposed surfaces with a metal jacket.

3.06 INSTALLATION OF FLEXIBLE ELASTOMERIC INSULATION

- A. Seal longitudinal seams and end joints with manufacturers recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- B. Insulation Installation on Pipe Flanges:
 - 1. Install pipe insulation to outer diameter of pipe flange.
 - 2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
 - 3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.
 - 4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- C. Insulation Installation on Pipe Fittings and Elbows:
 - 1. Install mitered sections of pipe insulation.
 - 2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- D. Insulation Installation on Valves and Pipe Specialties:
 - 1. Install preformed valve covers manufactured of same material as pipe insulation when available.
 - 2. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
 - 3. Install insulation to flanges as specified for flange insulation application.

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4. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.07 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.08 PIPING INSULATION SCHEDULE, GENERAL

- A. Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.
- B. Items Not Insulated: Unless otherwise indicated, do not install insulation on the following:
 1. Drainage piping located in crawl spaces.
 2. Underground piping.
 3. Chrome-plated pipes and fittings unless there is a potential for personnel injury.

3.09 PIPING INSULATION SCHEDULE

- A. See on the next page table.

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PIPING INSULATION SCHEDULE												
System Or Service +	Avg. Pipe Temp Degrees F	Insulation Type	Pipe Location			Jacket			Insulation Thickness, Inches			
			Indoor	Outdoor	Below Grade	All Ser- vice	Metal	Fabric	Pipe Sizes, Inches			
									< 1	1-1.25	1.5-3	4-8
Refrigerant Suction	45	Elastomer	X	X(a)					0.5 0.5	0.5 0.5	1 1	- -
Refrigerant Liquid	120	Elastomer	X	X(a)					1 1	1 1	1.5 1.5	- -
Condensate Drain for AC Equipment	55	Elastomer	X						0.5	0.5	0.5	-

a = Outdoor coating with UV protection required on outdoor piping.

END OF SECTION

**SECTION 23 21 13
HYDRONIC PIPING**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes pipe and fitting materials and joining methods for the following:
 - 1. Plastic pipe and fittings.

1.02 ACTION SUBMITTALS (For Record Only, Submit Substitutions Only for Review)

- A. Product Data: For each type of the following:
 - 1. Pipe.
 - 2. Fittings.
 - 3. Joining materials.
- B. Provide lowest VOC content and lowest emitting adhesives unless otherwise directed. The materials used on project are to be "sustainable" as defined by the EPA comprehensive procurement guideline (CPG) Program.

PART 2 - PRODUCTS

2.01 PLASTIC PIPE AND FITTINGS

- A. PVC Plastic Pipe: ASTM D2665 or D2949, schedule 40, Type DWV.
 - 1. PVC Plastic Pipe Fittings: solvent welded joints.

2.02 JOINING MATERIALS

- A. Solvent Cements for PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.

PART 3 - EXECUTION

3.01 PIPING APPLICATIONS

- A. Condensate-Drain Piping: PVC Schedule 40, Type DWV, ASTM D2665 or D 2949, PVC fittings, with solvent welded joints.

3.02 PIPING INSTALLATIONS

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. 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 indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- E. Install piping to permit valve servicing.
- F. Install piping at indicated slopes.
- G. Install piping free of sags and bends.
- H. Install fittings for changes in direction and branch connections.
- I. Install piping to allow application of insulation.
- J. Select system components with pressure rating equal to or greater than system operating pressure.
- K. Install groups of pipes parallel to each other, spaced to permit applying insulation and servicing of valves.
- L. Install drains, consisting of a tee fitting, NPS 3/4ball valve, and short NPS 3/4 threaded nipple with cap, at low points in piping system mains and elsewhere as required for system drainage.
- M. Install piping at a uniform grade of 0.2 percent upward in direction of flow.

- N. Reduce pipe sizes using eccentric reducer fitting installed with level side up.
- O. Install branch connections to mains using mechanically formed tee fittings in main pipe, with the branch connected to the bottom of the main pipe. For up-feed risers, connect the branch to the top of the main pipe.
- P. Install unions in piping, NPS 2-1/2 and smaller, adjacent to valves, at final connections of equipment, and elsewhere as indicated.

3.03 HANGERS AND SUPPORTS

- A. Comply with requirements per SMACNA for hanger, support, and anchor devices. Comply with the following requirements for maximum spacing of supports.
- B. Comply with requirements per SMACNA for "Vibration Controls for HVAC" for vibration isolation restraints.
- C. Plastic Piping Hanger Spacing: Space hangers according to pipe manufacturer's written instructions for service conditions. Avoid point loading. Space and install hangers with the fewest practical rigid anchor points.
- D. Support vertical runs at roof, at each floor, and at 10-foot intervals between floors.

3.04 PIPE JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- C. Plastic Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
 - 1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
 - 2. PVC Non-pressure Piping: Join according to ASTM D 2855.

3.05 FIELD QUALITY CONTROL

- A. Prepare hydronic piping according to ASME B31.9 and as follows:
 - 1. Leave joints, including welds, uninsulated and exposed for examination during test.
 - 2. Provide temporary restraints for expansion joints that cannot sustain reactions due to test pressure. If temporary restraints are impractical, isolate expansion joints from testing.
 - 3. Flush hydronic piping systems with clean water; then remove and clean or replace strainer screens.
 - 4. Isolate equipment from piping. If a valve is used to isolate equipment, its closure shall be capable of sealing against test pressure without damage to valve. Install blinds in flanged joints to isolate equipment.
 - 5. Install safety valve, set at a pressure no more than one-third higher than test pressure, to protect against damage by expanding liquid or other source of overpressure during test.
- B. Perform the following tests on hydronic piping:
 - 1. Use ambient temperature water as a testing medium unless there is risk of damage due to freezing. Another liquid that is safe for workers and compatible with piping may be used.
 - 2. While filling system, use vents installed at high points of system to release air. Use drains installed at low points for complete draining of test liquid.
 - 3. Isolate expansion tanks and determine that hydronic system is full of water.
 - 4. Subject piping system to hydrostatic test pressure that is not less than 1.5 times the system's working pressure. Test pressure shall not exceed maximum pressure for any vessel, pump, valve, or other component in system under test. Verify that stress due to pressure at bottom of vertical runs does not exceed 90 percent of specified minimum yield strength or 1.7 times the "SE" value in Appendix A in ASME B31.9, "Building Services Piping."
 - 5. After hydrostatic test pressure has been applied for at least 10 minutes, examine piping, joints, and connections for leakage. Eliminate leaks by tightening, repairing, or replacing components, and repeat hydrostatic test until there are no leaks.
 - 6. Prepare written report of testing.

END OF SECTION

SECTION 23 23 00
REFRIGERANT PIPING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Refrigerant pipes and fittings.
 - 2. Refrigerants.

1.02 ACTION SUBMITTALS

- A. Product Data
- B. Shop Drawings:
 - 1. Show layout of refrigerant piping and specialties, including pipe, tube, and fitting sizes; flow capacities; valve arrangements and locations; slopes of horizontal runs; oil traps; double risers; wall and floor penetrations; and equipment connection details.
 - 2. Show piping size and piping layout, including oil traps, double risers, specialties, and pipe and tube sizes to accommodate, as a minimum, equipment provided, elevation difference between compressor and evaporator, and length of piping to ensure proper operation and compliance with warranties of connected equipment.
 - 3. Show interface and spatial relationships between piping and equipment.
 - 4. Shop Drawing Scale: 1/4 inch equals 1 foot.

1.03 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.
- B. Flushing Procedures report.

1.04 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For refrigerant valves and piping specialties to include in maintenance manuals.

1.05 QUALITY ASSURANCE

- A. Comply with ASHRAE 15, "Safety Code for Refrigeration Systems."
- B. Comply with ASME B31.5, "Refrigeration Piping and Heat Transfer Components."

1.06 PRODUCT STORAGE AND HANDLING

- A. Store piping with end caps in place to ensure that piping interior and exterior are clean when installed.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Line Test Pressure for Refrigerant R-410A:
 - 1. Suction Lines for Air-Conditioning Applications: 300 psig.
 - 2. Suction Lines for Heat-Pump Applications: 535 psig.
 - 3. Hot-Gas and Liquid Lines: 535 psig.

2.02 COPPER TUBE AND FITTINGS

- A. Copper Tube: ASTM B280, Type ACR with copper fittings and brazed joints
- B. Wrought-Copper Fittings: ASME B16.22.
- C. Wrought-Copper Unions: ASME B16.22.
- D. Brazing Filler Metals: AWS A5.8/A5.8M.

2.03 REFRIGERANTS

- A. ASHRAE 34, R-410A: Pentafluoroethane/Difluoromethane.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Arkema Inc.
 - b. DuPont Fluorochemicals Div.
 - c. Genetron Refrigerants; Honeywell International Inc.

PART 3 - EXECUTION

3.01 PIPING APPLICATIONS FOR REFRIGERANT R-410A

- A. Suction Lines NPS 1-1/2 and Smaller for Conventional Air-Conditioning Applications: Copper, Type ACR, annealed-temper tubing and wrought-copper fittings with brazed joints.
- B. Hot-Gas and Liquid Lines: Copper, Type ACR, annealed- or drawn-temper tubing and wrought-copper fittings with brazed joints.
- C. Safety-Relief-Valve Discharge Piping: Copper, Type ACR, annealed- or drawn-temper tubing and wrought-copper fittings with brazed joints.

3.02 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 Shop Drawings.
- B. Install refrigerant piping according to ASHRAE 15.
- C. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.
- D. Install piping at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- F. Install piping adjacent to machines to allow service and maintenance.
- G. Install piping free of sags and bends.
- H. Install fittings for changes in direction and branch connections.
- I. Select system components with pressure rating equal to or greater than system operating pressure.
- J. Install piping as short and direct as possible, with a minimum number of joints, elbows, and fittings.
- K. Arrange piping to allow inspection and service of refrigeration equipment. Install valves and specialties in accessible locations to allow for service and inspection. Install access doors or panels as specified in Section 08 31 13 "Access Doors and Frames" if valves or equipment requiring maintenance is concealed behind finished surfaces.
- L. Install refrigerant piping in protective conduit where installed belowground.
- M. Install refrigerant piping in rigid or flexible conduit in locations where exposed to mechanical injury.
- N. Slope refrigerant piping as follows:
 - 1. Install horizontal hot-gas discharge piping with a uniform slope downward away from compressor.
 - 2. Install horizontal suction lines with a uniform slope downward to compressor.
 - 3. Install traps and double risers to entrain oil in vertical runs.
 - 4. Liquid lines may be installed level.

- O. When brazing or soldering, remove solenoid-valve coils and sight glasses; also remove valve stems, seats, and packing, and accessible internal parts of refrigerant specialties. Do not apply heat near expansion-valve bulb.
- P. Install piping with adequate clearance between pipe and adjacent walls and hangers or between pipes for insulation installation.
- Q. Identify refrigerant piping and valves according to Section 23 05 53 "Identification for HVAC Piping and Equipment."

3.03 PIPE JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- C. Fill pipe and fittings with an inert gas (nitrogen or carbon dioxide), during brazing or welding, to prevent scale formation.
- D. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," Chapter "Pipe and Tube."
 - 1. Use Type BCuP (copper-phosphorus) alloy for joining copper socket fittings with copper pipe.
 - 2. Use Type BAg (cadmium-free silver) alloy for joining copper with bronze

3.04 HANGERS AND SUPPORTS

- A. Install hangers for copper tubing with the following maximum spacing and minimum rod diameters:
 - 1. NPS 1/2: Maximum span, 60 inches; minimum rod, 1/4 inch.
 - 2. NPS 5/8: Maximum span, 60 inches; minimum rod, 1/4 inch.
 - 3. NPS 1: Maximum span, 72 inches; minimum rod, 1/4 inch.
 - 4. NPS 1-1/4: Maximum span, 96 inches; minimum rod, 3/8 inch.
 - 5. NPS 1-1/2: Maximum span, 96 inches; minimum rod, 3/8 inch.
 - 6. NPS 2: Maximum span, 96 inches; minimum rod, 3/8 inch.
 - 7. NPS 2-1/2: Maximum span, 108 inches; minimum rod, 3/8 inch.
 - 8. NPS 3: Maximum span, 10 feet; minimum rod, 3/8 inch.
 - 9. NPS 4: Maximum span, 12 feet; minimum rod, 1/2 inch.

3.05 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Comply with ASME B31.5, Chapter VI.
 - 2. Test refrigerant piping, specialties, and receivers. Isolate compressor, condenser, evaporator, and safety devices from test pressure if they are not rated above the test pressure.
 - 3. Test high- and low-pressure side piping of each system separately at not less than the pressures indicated in "Performance Requirements" Article.
 - a. Fill system with nitrogen to the required test pressure.
 - b. System shall maintain test pressure at the manifold gage throughout duration of test.
 - c. Test joints and fittings with electronic leak detector or by brushing a small amount of soap and glycerin solution over joints.
 - d. Remake leaking joints using new materials, and retest until satisfactory results are achieved.
- B. Prepare test and inspection reports.

3.06 SYSTEM FLUSHING FOR REUSING EXISTING PIPING

- A. Safety Precautions: Before beginning any work, ensure that all necessary safety precautions are followed. This includes wearing appropriate PPE such as safety goggles, gloves, and respiratory protection if required. Ensure proper ventilation in the work area.
- B. Isolate System: Shut off the power to the HVACR system and isolate the section of refrigerant piping that requires flushing. Close all service valves and disconnect the system from any power sources.
- C. Prepare Equipment: Gather all necessary equipment and materials for the flushing procedure. This includes a flushing pump, hoses, a flushing solution suitable for R-410A systems (such as a refrigeration-specific solvent or cleaning agent approved for use with R-410A), nitrogen gas, and containers for collecting flushed material.
- D. Connect Flushing Equipment: Connect the flushing pump and hoses to the refrigerant piping system, ensuring that connections are tight and leak-free. Connect the nitrogen cylinder to the system as well.
- E. Flush Piping: Start the flushing pump and circulate the flushing solution through the refrigerant piping system. The flushing solution should flow through all sections of piping, coils, and components to remove any contaminants, debris, or residual oil. Follow manufacturer recommendations for the appropriate duration of flushing.
- F. Monitor Progress: Monitor the flushing process closely to ensure that the flushing solution effectively cleans the piping system. Check for any signs of debris or contamination in the flushed material.
- G. Purge with Nitrogen: Purge the piping system with nitrogen gas after flushing to remove any remaining flushing solution and moisture. As nitrogen gas flows through the system, open any vent valves or ports to allow air, moisture, and contaminants to be purged from the system. Ensure that the venting process is conducted in a safe manner and that any released gases are properly ventilated. Maintain a continuous flow of nitrogen gas through the system for a sufficient duration to ensure thorough purging. The duration of purging shall be determined by the contractor based on the volume of the system. Once purging is complete, close the vent valves or ports and allow nitrogen gas to continue flowing through the system for a final period to ensure complete purging.
- H. Inspect Piping: After flushing is complete, visually inspect the refrigerant piping system to ensure that it is clean and free of debris or contaminants. Use a flashlight or inspection camera if necessary to inspect hard-to-reach areas.
- I. Dispose of Flushed Material: Dispose of the flushed material (flushing solution and any collected debris) according to local regulations and environmental guidelines. Collect the material in designated containers for proper disposal.
- J. Final Checks: Once the piping system has been flushed and inspected, perform any final checks or tests to ensure that it is ready for refrigerant charging with R-410A. This may include pressure testing, leak detection, and system commissioning procedures specific to R-410A systems.
- K. Document Procedure: Record details of the flushing procedure in the system maintenance log or service report, including the flushing solution used, flushing duration, and any observations or findings during the process.

3.07 SYSTEM CHARGING

- A. Charge system using the following procedures:
 - 1. Install core in filter dryers after leak test but before evacuation.
 - 2. Evacuate entire refrigerant system with a vacuum pump to 500 micrometers. If vacuum holds for 12 hours, system is ready for charging.
 - 3. Break vacuum with refrigerant gas, allowing pressure to build up to 2 psig.
 - 4. Charge system with a new filter-dryer core in charging line.

3.08 ADJUSTING

- A. Adjust thermostatic expansion valve to obtain proper evaporator superheat.
- B. Adjust high- and low-pressure switch settings to avoid short cycling in response to fluctuating suction pressure.
- C. Adjust set-point temperature of air-conditioning controllers to the system design temperature.
- D. Perform the following adjustments before operating the refrigeration system, according to manufacturer's written instructions:
 - 1. Open shutoff valves in condenser (if present).
 - 2. Verify that compressor oil level is correct.
 - 3. Open compressor suction and discharge valves.
 - 4. Open refrigerant valves except bypass valves that are used for other purposes.
 - 5. Check open compressor-motor alignment and verify lubrication for motors and bearings.
- E. Replace core of replaceable filter dryer after system has been adjusted and after design flow rates and pressures are established.

END OF SECTION

SECTION 23 37 23
HVAC GRAVITY VENTILATORS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
Hooded Ventilators

1.02 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Ventilators shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of ventilator components, noise or metal fatigue caused by ventilator blade rattle or flutter, or permanent damage to fasteners and anchors. Wind pressures shall be considered to act normal to the face of the building.
 - 1. Wind Loads: Determine loads based on a uniform pressure of 30 lbf/sq. ft. acting inward or outward.
- B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes, without buckling, opening of joints, overstressing of components, failure of connections, or other detrimental effects.
- C. Water Entrainment: Limit water penetration through unit to comply with ASHRAE 62.1.

1.03 ACTION SUBMITTALS

- A. Shop Drawings: For gravity ventilators. Include plans, elevations, sections, details, ventilator attachments to curbs, and curb attachments to roof structure.
 - 1. Show weep paths, gaskets, flashing, sealant, and other means of preventing water intrusion.
 - 2. Detail fabrication and assembly of shop-fabricated ventilators.

1.04 COORDINATION

- A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Galvanized-Steel Sheet: ASTM A 653/A 653M, G90 zinc coating, mill phosphatized.
- B. Fasteners: Same basic metal and alloy as fastened metal or 300 Series stainless steel unless otherwise indicated. Do not use metals that are incompatible with joined materials.
 - 1. Use types and sizes to suit unit installation conditions.
 - 2. Use hex-head or Phillips pan-head screws for exposed fasteners unless otherwise indicated.
- C. Post-Installed Fasteners for Concrete and Masonry: Torque-controlled expansion anchors made from stainless-steel components, with capability to sustain without failure a load equal to 4 times the loads imposed for concrete, or 6 times the load imposed for masonry, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.
- D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.02 FABRICATION, GENERAL

- A. Factory fabricate gravity ventilators to minimize field splicing and assembly. Disassemble units to the minimum extent as necessary for shipping and handling. Clearly mark units for reassembly and coordinated installation.
- B. Fabricate frames, including integral bases, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.
- C. Fabricate units with closely fitted joints and exposed connections accurately located and secured.
- D. Fabricate supports, anchorages, and accessories required for complete assembly.

- E. Perform shop welding by AWS-certified procedures and personnel

2.03 HOODED VENTILATORS

- A. Description: Hooded penthouse for relief air.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Greenheck Fan Corporation.
 - 2. Loren Cook Company.
 - 3. PennBarry; division of Air System Components.
 - 4. Twin City Fan & Blower.
- C. Construction:
 - 1. Material: Galvanized steel, of thickness required to comply with structural performance requirements, but not less than 0.064-inch-thick base and 0.040-inch-thick hood; suitably reinforced.
 - 2. Bird Screening: Galvanized-steel, 1/2-inch-square mesh wire Aluminum, 1/2-inch-square mesh or flattened, expanded aluminum, 3/4-inch diamond mesh wire.
- D. Galvanized-Steel Finish:
 - 1. Surface Preparation: Clean surfaces of dirt, grease, and other contaminants. Clean welds, mechanical connections, and abraded areas, and repair galvanizing according to ASTM A 780/A 780M. Apply a conversion coating suited to the organic coating to be applied over it.
- E. Dampers:
 - 1. Location: Hood neck.
 - 2. Control: Gravity backdraft.
- F. Roof Curbs: Galvanized-steel sheet; with mitered and welded corners; 1-1/2-inch-thick, rigid fiberglass insulation adhered to inside walls; and 1-1/2-inch wood nailer. Size as required to fit roof opening and ventilator base.
 - 1. Overall Height: 24 inches

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install gravity ventilators level, plumb, and at indicated alignment with adjacent work.
- B. Install gravity ventilators with clearances for service and maintenance.
- C. Install perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.
- D. Install concealed gaskets, flashings, joint fillers, and insulation as installation progresses.
- E. Label gravity ventilators according to requirements specified in Section 230553 "Identification for HVAC Piping and Equipment."
- F. Protect galvanized and nonferrous-metal surfaces from corrosion or galvanic action by applying a heavy coating of bituminous paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.
- G. Repair finishes damaged by cutting, welding, soldering, and grinding. Restore finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory, make required alterations, and refinish entire unit or provide new units.

END OF SECTION

SECTION 23 81 26
SPLIT SYSTEM AIR CONDITIONERS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes split-system air-conditioning and heat-pump units consisting of separate evaporator-fan and compressor-condenser components.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. Include performance data in terms of capacities, outlet velocities, static pressures, sound power characteristics, motor requirements, and electrical characteristics.
- 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. Wiring Diagrams: For power, signal, and control wiring.

1.03 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.
- B. Warranty: Sample of special warranty.

1.04 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For split-system air-conditioning units to include in emergency, operation, and maintenance manuals.

1.05 QUALITY ASSURANCE

- 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. ASHRAE Compliance:
 - 1. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Standard for Refrigeration Systems."
 - 2. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 4 - "Outdoor Air Quality," Section 5 - "Systems and Equipment," Section 6 - "Procedures," and Section 7 - "Construction and System Start-up."
- C. ASHRAE/IES Compliance: Applicable requirements in ASHRAE/IES 90.1.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Carrier Global Corporation.
 - 2. Daikin North America.
 - 3. Mitsubishi Electric & Electronics USA, Inc.
 - 4. Samsung HVAC.
 - 5. Trane.

2.02 INDOOR UNITS (5 TONS OR LESS)

- A. Wall-Mounted, evaporator-Fan Components:
 - 1. Cabinet: Enameled steel with removable panels on front and ends in manufacturer's standard color, and discharge drain pans with drain connection.
 - 2. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins and thermal-expansion valve. Comply with ARI 206/110.

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3. Fan: Direct drive, centrifugal.
4. Fan Motors:
 - a. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements specified in Section 230513 "Common Motor Requirements for HVAC Equipment."
 - b. Multitapped, multispeed with internal thermal protection and permanent lubrication.
 - c. NEMA Premium (TM) efficient motors as defined in NEMA MG 1.
 - d. Controllers, Electrical Devices, and Wiring: Comply with requirements for electrical devices and connections specified in electrical Sections.
5. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.
6. Condensate Drain Pans:
 - a. Fabricated with one percent slope in at least two planes to collect condensate from cooling coils (including coil piping connections, coil headers, and return bends) and humidifiers, and to direct water toward drain connection.
 - 1) Length: Extend drain pan downstream from leaving face to comply with ASHRAE 62.1.
 - 2) Depth: A minimum of 1 inch deep.
 - b. Single-wall, galvanized-steel sheet.
 - c. Drain Connection: Located at lowest point of pan and sized to prevent overflow. Terminate with threaded nipple on one end of pan.
 - d. Pan-Top Surface Coating: Asphaltic waterproofing compound.
7. Air Filtration Section:
 - a. General Requirements for Air Filtration Section:
 - 1) Comply with NFPA 90A.
 - 2) Minimum MERV according to ASHRAE 52.2.
 - 3) Filter-Holding Frames: Arranged for flat or angular orientation, with access doors on both sides of unit. Filters shall be removable from one side or lifted out from access plenum.
 - b. Disposable Panel Filters:
 - 1) MERV according to ASHRAE 52.2: 8 minimum.
 - 2) Media: Interlaced glass fibers sprayed with nonflammable adhesive.
 - 3) Frame: Galvanized steel, with metal grid on outlet side, steel rod grid on inlet side, and hinged; with pull and retaining handles.

2.03 OUTDOOR UNITS (5 TONS OR LESS)

- A. Air-Cooled, Compressor-Condenser Components:
 1. Casing: Steel, finished with baked enamel in manufacturer's standard color, with removable panels for access to controls, weep holes for water drainage, and mounting holes in base. Provide brass service valves, fittings, and gage ports on exterior of casing.
 2. Compressor: Hermetically sealed with crankcase heater and mounted on vibration isolation device. Compressor motor shall have thermal- and current-sensitive overload devices, start capacitor, relay, and contactor.
 - a. Compressor Type: Scroll.
 - b. Two-speed compressor motor with manual-reset high-pressure switch and automatic-reset low-pressure switch.
 - c. Refrigerant: R-410A.
 - d. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins and liquid subcooler. Comply with ARI 206/110.
 3. Fan: Aluminum-propeller type, directly connected to motor.
 4. Motor: Permanently lubricated, with integral thermal-overload protection.
 5. Low Ambient Kit: Permits operation down to 0 deg F.
 6. Mounting Base: Polyethylene

2.04 ACCESSORIES

- A. Control equipment and sequence of operation are specified in Section 230923 "Direct Digital Control (DDC) System for HVAC" and in drawings.
- B. Thermostat; wall-mounted and hardwired with the following features:
 - 1. Compressor time delay.
 - 2. 24-hour time control of system stop and start.
 - 3. Liquid-crystal display indicating temperature, set-point temperature, time setting, operating mode, and fan speed.
 - 4. Fan-speed selection including auto setting.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install units level and plumb.
- B. Install evaporator-fan components using manufacturer's standard mounting devices securely fastened to building structure.
- C. Equipment Mounting: Comply with requirements for vibration isolation devices.
- D. Install and connect existing refrigerant tubing and charge with refrigerant per manufacturer's recommendation.

3.02 CONNECTIONS

- A. Piping installation requirements are specified in other sections. Drawings indicate general arrangements of piping, fittings, and specialties.
- B. Where piping is installed adjacent to unit, allow space for service and maintenance of unit.

3.03 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- B. Tests and Inspections:
 - 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 - 2. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Remove and replace malfunctioning units and retest as specified above.
- D. Prepare test and inspection reports.

3.04 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
 - 1. Complete installation and startup checks according to manufacturer's written instructions.

3.05 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain units.

END OF SECTION

SECTION 26 00 00

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section and all other Electrical Specification Sections.

1.2 SUMMARY

- A. This Section includes general administrative and procedural requirements, as well as the following basic electrical materials and methods:

- 1. Submittals.
- 2. Record documents.
- 3. Operation and Maintenance manuals.
- 4. Rough-ins.
- 5. Electrical installations.
- 6. Cutting and patching.
- 7. Access to electrical installations.

- B. Summary of Work:

- 1. Provide a complete integrated electrical system in accordance with the intent of these specifications and the accompanying drawings.

1.3 REFERENCED ORGANIZATIONS AND CODES

- A. The following list of abbreviations are utilized within the specifications and are provided as a reference.

- B. All work in Divisions 26 shall comply with the latest version of following codes and regulations as adopted by the State of New York and the State Fire Marshal, unless otherwise specified.

- 1. NFPA (National Fire Protection Association).
- 2. NESC (National Electrical Safety Code).
- 3. ADA (American with Disabilities Act).
- 4. ANSI (American National Standards Inst.).
- 5. ASTM (American Society for Testing and Materials).
- 6. ICC (International Code Council series of codes).
- 7. OSHA (Occupational Safety & Health Act).
- 8. UL (Underwriters Laboratories).
- 9. NYSBC (New York State Building Code)
- 10. IEBC (International Existing Building Code).
- 11. LSC (NFPA 101, Life safety Code with amendments).
- 12. NEC (National Electrical code, NFPA 70).
- 13. ANSI/EIA/TIA.
- 14. NETA (National Electrical Testing Association).
- 15. NEMA (National Electrical Manufacturer's Association).
- 16. NECA (National Electrical Contractors Association).

1.4 OUTAGES

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- A. For all work requiring an outage, the contractor shall submit an outage request to the Project Manager. The existing mechanical/electrical systems shall remain operational unless turned off by owner personnel during the construction of the project. For each electrical outage request include a photograph of the panel index schedule for each panel affected by the outage.
- B. Unless otherwise specified, outages of any services required for the performance of this contract and affecting areas other than the immediate work area shall be scheduled at least ten days (10) days in advance with the Owner. All such outages shall be performed on other than normal duty hours.
- C. All electrical outages which will interfere with the normal use of the building in any manner shall be done at such times as shall be mutually agreed upon by the contractor and the Owner.
- D. The contractor shall include in his price the cost of all premium time required for outages and other work which interferes with the normal use of the building, which will be performed, in most cases, during other than normal work time and at the convenience of the Owner.
- E. The operation of electrical equipment; required to achieve an outage must be accomplished by Owner personnel only. Prospective subcontractors under this section are cautioned that the unauthorized operation of electrical equipment or other control devices by their personnel can result in extremely serious consequences for which the contractor will be held accountable.

1.5 INSTALLER'S QUALIFICATIONS

- A. Electrical Installer shall submit the following evidence:
 - 1. Five (5) comparable completed projects.
 - 2. Reference letters from minimum of three (3) registered professional engineers, general contractors, building owners, explaining proficiency, quality of work, or other attribute on projects of similar size or substance.
 - 3. Copy of Virginia Master Electrician's License.
 - 4. Local or State license where required.
- B. The electrical installer shall utilize a full time project foreman in charge of all electrical work.
 - 1. Fully qualified and experienced in such work.
 - 2. Available, on site, at all times during construction.
 - 3. All communication shall be through this person.
- C. Installer of specialized systems such as Fire Alarms, telecommunication systems, etc. shall meet the requirements of the associated spec section(s).

1.6 CUTTING, WELDING, BURNING

- A. Before the contractor and/or any sub-contractor commence's any cutting, welding, and/or burning, the contractor shall obtain a hot work permit from Environmental Health and Safety
- B. The hot work permit copy shall remain on the job site at the hot work location until such work is completed at which time the permit shall be returned to Environmental Health and Safety.

1.7 WORK PERFORMANCE

- A. All electrical work must comply with the requirements of NFPA 70 (NEC), NFPA 70B, NFPA 70E, OSHA Part 1910 subpart J, OSHA Part 1910 subpart S and OSHA Part 1910 subpart K in addition to other references required by the contract.
- B. Before initiating any work, a job specific work plan must be developed by the contractor. The work

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plan must include procedures to be used on and near the live electrical equipment, barriers to be installed, and safety equipment to be used and exit pathways.

- C. Job site and worker safety are the responsibility of the contractor. Compliance with the requirements of NFPA 70E is subject to ongoing inspection and failure to comply will result in an immediate Stop Work order being issued and enforced at the contractor's expense.
- D. Energized electrical conductors and circuit parts to which an employee might be exposed shall be put into an electrically safe work condition before an employee performs work any time the employee is within the limited approach boundary or, where an increased risk of injury from an exposure to an arc flash hazard exists.
- E. Outages should be scheduled a minimum of ten (10) days in advance.
- F. Mandatory Requirements: The following requirements are mandatory:
 - 1. Protective Equipment: Electricians must use full protective equipment (i.e., certified and tested insulating material to cover exposed energized electrical components, certified and tested insulated tools, etc.) while working on energized systems in accordance with NFPA 70E.
 - 2. Energized Work Permit: A Energized Work Permit is required for any work on energized circuits or equipment. Permit must be approved prior to performing energized work. Submit the work permit with the outage request.

1.8 SUBMITTALS

- A. General: Follow the procedures specified in Division 01 Section "Submittals."
- B. Product data as specified in the electrical specifications.
- C. Shop drawings detailing fabrication and installation requirements for electrical equipment.
- D. Refer to all specification sections to submit required shop drawings.
- E. Submittal File Format: File formats for each submittal shall be electronically as follows:
 - 1. Product Data: "pdf" file format.
 - 2. Shop Drawings: "pdf" file format.
 - 3. Coordinated Drawings: "pdf" or "dwg" file formats.

1.9 QUALITY ASSURANCE

- A. Comply with NFPA 70 for components and installation.
- B. Listing and Labeling: Provide products specified in this Section that are listed and labeled.
 - 1. The Terms "Listed and Labeled": As defined in the National Electrical Code, Article 100.
 - 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.
- C. Install all components and equipment per manufacturer's written instructions.
- D. Provide installation in accordance with recognized trade organizations and standards:
 - 1. NEMA.
 - 2. NECA "Standards of Installation"

1.10 RECORD DOCUMENTS

- A. Prepare record documents in accordance with the requirements in Division 01 Section "Contract Closeout." In addition to the requirements specified in Division 01, indicate the following installed conditions:
 - 1. Conduit and wire runs between the points
 - 2. Equipment locations (exposed and concealed), dimensioned from prominent building lines.
 - 3. Approved substitutions, Contract Modifications, RFI responses and actual equipment and materials installed.

1.11 **OPERATION AND MAINTENANCE MANUALS**

- A. Electrical O & M Manual File: Provide one (1) electronic file "pdf format" for the projects Electrical Operation and Maintenance Manual for the Material and Equipment installed in the project included in Divisions 26 on a thumb drive. The electronic Electrical O & M manual shall include one copy of each approved submittal, any manufacturer's maintenance manuals, all warranty certificates, arranged in file folders for each submittal. Also include the address, phone number and contact person for each supplier. Files shall be stacked and include both a book mark and tree structure for accessing each submittal file as indicated in Division 01 Section "Closeout Procedures".
- B. Alternate O & M File: The CM/General Contractor has the option to include all disciplines in a single O&M Manual file for smaller type renovation projects. The electronic O & M manual shall include one copy of each approved submittal, approved TAB report, any manufacturers maintenance manuals, all warranty certificates, arranged in file folders under each discipline for each submittal. Files shall be stacked and include both a book mark and tree structure for accessing each submittal file The electronic file structure for the single file shall be as follows:
 - 1. Cover Sheet
 - 2. Forward
 - 3. General Information
 - 4. Subcontractors List
 - 5. Suppliers List
 - 6. General Warranty Statement – include the manufacturer's warranty with the equipment submittal in the appropriate discipline.
 - 7. Architectural: group all architectural data under this heading with a tree structure.
 - 8. Mechanical: group all mechanical data under this heading with a tree structure.
 - 9. Electrical: group all electrical data under this heading with a tree structure.
 - 10. Fire Protection: group all fire protection data under this heading with a tree structure.
 - 11. As Built Drawings: Contractors Markups.

1.12 **DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

1.13 **SEQUENCING AND SCHEDULING**

- A. Coordinate electrical equipment installation with other building components.
- B. Arrange for chases, slots, and openings in building structure during progress of construction to allow for electrical installations.

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- C. Coordinate the installation of required supporting devices and set sleeves in poured in place concrete and other structural components as they are constructed.
- D. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Coordinate installation of large equipment requiring positioning prior to closing in the building.
- E. Coordinate connection of electrical services.
- F. Coordinate connection of electrical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies.
- G. Coordinate requirements for access panels and doors where electrical items requiring access are concealed behind finished surfaces. Access panels and doors are specified in the Architectural Specifications.
- H. Coordinate installation of identifying devices after completing covering and painting where devices are applied to surfaces. Install identifying devices prior to installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS (Not Applicable)

2.1 LISTED MANUFACTURERS:

- A. Listed Manufacturers: The listed manufacturers indicated in Part 2 of each specification section as the basis of design represents the minimum level of quality for materials and equipment that is acceptable to Owner. Unless otherwise indicated in each specification section, contractors may submit material and equipment by non-listed manufacturers provided said submittals meet the requirements of these specifications. All submitted materials and equipment are subject to approval by the A/E.
- B. Approved Equal Equipment Layouts: The equipment layouts and the related mechanical and electrical service connections, access space and supports indicated on the construction documents represent equipment provided by the specified basis of design manufacturer and model number. When the successful bidder chooses to provide "or approved equal" equipment by one (1) of the other listed manufacturers in the specifications, the bidder shall be responsible for providing all adjustments and modifications to the services necessary to make connections to the equipment, the bidder shall be responsible for installing the equipment such that all required clear access space is maintained, and the bidder shall be responsible for providing all adjustments and modifications to the equipment mounting and supports. All adjustments and modifications shall be provided by the bidder and appropriate subcontractors at no additional cost to the project.

PART 3 – EXECUTION

3.1 ROUGH-IN

- A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.
- B. For equipment rough-in requirements see specifications for electrical equipment.

3.2 ELECTRICAL INSTALLATIONS

- A. General: Sequence, coordinate, and integrate the various elements of electrical systems, materials, and equipment. Comply with the following requirements:

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1. Coordinate electrical systems, equipment, and materials installation with other building components.
2. Verify all dimensions by field measurements.
3. Install systems, materials, and equipment to conform with approved submittal data, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to Owner.
4. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
5. Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.
6. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

3.3 CUTTING AND PATCHING

- A. General: Perform cutting and patching in accordance with Division 1 Section "Cutting and Patching." In addition to the requirements specified in Division 1, the following requirements apply:
 1. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.
- B. Perform cutting, fitting, and patching of electrical equipment and materials required to:
 1. Uncover Work to provide for installation of ill timed Work.
 2. Remove and replace defective Work.
 3. Remove and replace Work not conforming to requirements of the Contract Documents.
 4. Disconnect installed work as specified for testing.
 5. Install equipment and materials in existing structures.
 6. Upon written instructions from Owner representative, uncover and restore Work to provide for Owner Representative's observation of concealed Work.
- C. Cut, remove and legally dispose of selected electrical equipment, components, and materials as indicated, including but not limited to removal of electrical systems and equipment as indicated on the drawings and specifications and other electrical items made obsolete by the new Work.
- D. Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed.
- E. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.
 1. Patch existing finished surfaces and building components using new materials matching existing materials and experienced Installers. Installers' qualifications refer to the materials and methods required for the surface and building components being patched.
 2. Patch finished surfaces and building components using new materials specified for the original installation and experienced Installers. Installers' qualifications refer to the materials and methods required for the surface and building components being patched.

3.4 PROTECTION OF WORK

- A. Protect work, material and equipment from weather and construction operations before and after installation.

- B. Properly store and handle all materials and equipment.
- C. Cover temporary openings for electrical equipment to prevent the entrance of water, dirt, debris, and other foreign matter.

3.5 PROVISIONS FOR ACCESS

- A. Furnish and install adequate access to all electrical components. The following list shall be used as a guide only:
 - 1. Equipment such as transformers, generators, etc.
 - 2. Distribution panels.
 - 3. Switch Gear.
 - 4. Disconnects.
 - 5. Variable frequency drives.
- B. Access shall be as required by code and/or as determined by the Architect and Engineer.
- C. Refer to contract drawings where access panels have been specifically located.
- D. Where access is by means of lift out ceiling tiles or panels mark access each panel using small color coded or numbered tabs. Provide an index chart for identification. Place markers in corner of tile.

3.6 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of equipment and systems to Owner's personnel a minimum two (2) weeks prior to date of final inspection.
 - 1. For equipment requiring seasonal operation, perform instructions for other seasons at the same time.
 - 2. Training period shall be performed within one (1), two (2) week period.
- B. Use operation and maintenance manuals and video as basis of instruction. Review contents of manual and video with personnel in detail to explain all aspects of operation and maintenance.
- C. Demonstrate the following:
 - 1. Start up.
 - 2. Operation.
 - 3. Control.
 - 4. Adjustment.
 - 5. Trouble shooting.
 - 6. Servicing.
 - 7. Maintenance.
 - 8. Shutdown.
- D. Provide at least forty (40) hours straight time instruction to the operating personnel.
 - 1. This instruction period shall consist of not less than five (5) eight (8) hour days.
 - 2. Time of instruction shall be designated by the Owner.
 - 3. This instruction shall be in addition to instructional requirements of specific equipment specified elsewhere in the mechanical specifications.

3.7 EQUIPMENT PROVIDED UNDER ANOTHER DIVISION AND BY OTHERS

- A. The Installer of products under Divisions 26 shall make all system connections required to equipment furnished and installed under another division and by others.

- B. It shall be the responsibility of the Installer to obtain all necessary data from the equipment supplied under other Divisions.

3.8 RECORD DRAWINGS (As Built)

- A. Upon completion of the electrical installations, the Installer shall deliver to the Architect one (1) complete set of marked-up blueprints of the electrical contract drawings.
 - 1. The mark-ups shall be legibly marked in red pencil to show all changes and departures of the installation as compared with the original design.
 - 2. Refer to General Requirements of Division 01 for additional requirements pertaining to Submittals and Record Drawings.

3.9 CLOSEOUT PROCEDURES

- A. Operating and Maintenance Instructions: Submit Complete Package At Least Two (2) Months Prior To Substantial Completion. Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:
 - 1. Maintenance manuals, including a customized list of preventive maintenance items and annual schedule for maintenance.
 - 2. Record documents.
 - 3. Complete inventory of spare parts and materials.
 - 4. Tools.
 - 5. Identification systems.
 - 6. Control sequences.
 - 7. Hazards.
 - 8. Cleaning.
 - 9. Warranties and bonds.
 - 10. Maintenance agreements and similar continuing commitments.
- B. As part of instruction for operating equipment, demonstrate the following procedures:
 - 1. Start up.
 - 2. Shut down.
 - 3. Emergency operations.
 - 4. Noise and vibration adjustments.
 - 5. Safety procedures.
 - 6. Economy and efficiency adjustments.
 - 7. Effective energy utilization.

3.10 INSPECTIONS

- A. Contractor shall:
 - 1. Schedule, pay for (as applicable) and attend all inspections required by the Authorities Having Jurisdiction.
 - 2. Deliver all certificates to the Owner prior to final acceptance of work.
- B. Notify Owner Representative in advance of scheduled inspections.
- C. An electrical foreman, superintendent or other supervisor familiar with the project shall be in attendance for all scheduled electrical inspections.
- D. Schedule the preliminary and rough-in inspections in a timely manner. Any work covered prior to

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any inspection in a manner which, in the inspector's opinion, precludes a complete inspection shall be uncovered at the installer's cost.

3.11 DEMOLITION:

- A. Remove and dispose of all existing materials not required for re-use or re-installation.
- B. Deliver on the premises, where directed, existing material and equipment which is to be salvaged and remain property of Owner.
- C. All other materials removed shall become the property of the Contractor and shall be removed from the premises.
- D. Remove conduit, hangers, supports, etc. to a point below the finished floors or behind finished walls and cap. Cut such items flush with masonry surfaces.
- E. Remove wiring and conduit back to source panelboard or switch, or to last remaining device on the circuit. Remove conduit, hangers, supports, etc. unless otherwise noted. Conduit may remain to be reused for new work provided it is of the specified size and type and in condition acceptable to Owner Representative.
- F. Any conduit abandoned in concrete slabs, walls, or other inaccessible locations shall be left with a nylon pull wire. Ends shall be capped with push plugs for future use.

3.12 REPAIRS & RESTORATION OF SURFACES AND FINISHES:

- A. Restore all finishes, equipment and surfaces to original condition, where affected by the work. Provide the following, where applicable, in accordance with accepted trade standards and to Owner's satisfaction:
 - 1. Replace damaged ceiling tiles.
 - 2. Replace ceiling tiles where removal has left holes or cuts in original tiles.
 - 3. Patch, repair and repaint all walls and surfaces cut, penetrated or otherwise disturbed by the work.
 - 4. Patch holes and penetrations in wood, masonry and plaster.
 - 5. Provide suitable cover plates for all recessed back boxes of equipment removed and not covered by new devices.
 - 6. Provide larger trim or cover plates for new devices, where old back boxes, holes, etc. are not concealed by new work.

3.13 FINAL CLEANING

- A. General: General cleaning during construction is required by the General Conditions and included in Section Temporary Facilities.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
- C. Remove all electrical clippings, wiring, nuts, bolts, etc. left on top of ceilings and ceiling tiles.

END OF SECTION

SECTION 260519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

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. Copper building wire rated 600 V or less.
 - 2. Connectors, splices, and terminations rated 600 V and less.

1.3 DEFINITIONS

- A. RoHS: Restriction of Hazardous Substances.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals: In accordance to applicable requirements in other sections for lead, recycled, solvents and adhesives content.
- C. Product Schedule: Indicate type, use, location, and termination locations.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Field quality-control reports.

1.6 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 COPPER BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Belden Inc.
 - 2. Encore Wire Corporation.
 - 3. General Cable Technologies Corporation.
 - 4. Southwire Incorporated.
- C. Standards:
 - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
 - 2. RoHS compliant.
 - 3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- D. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.
- E. Conductor Insulation:
 - 1. Type THHN and Type THWN-2 Comply with UL 83.

2.2 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors, splices, and lugs 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 use.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. 3M Electrical Products.
 - 2. Hubbell Power Systems, Inc.
 - 3. ILSCO.
 - 4. O-Z/Gedney; a brand of Emerson Industrial Automation.
 - 5. Thomas & Betts Corporation; A Member of the ABB Group.
- C. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.
- D. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.
 - 1. Material: Copper.
 - 2. Type: One hole with standard barrels.
 - 3. Termination: Compression.

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 APPLICATIONS AND WIRING METHODS

- A. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway.
- B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- C. Feeders Concealed in Concrete, below Slabs-on-Grade: 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.
- G. Branch Circuits Concealed in Concrete, below Slabs-on-Grade: Type THHN/THWN-2, single conductors in raceway.
- H. Branch Circuits Installed below Raised Flooring: Type THHN/THWN-2, single conductors in raceway.

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 other sections 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 other sections.

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 (150 mm) of slack.
- D. Comply with requirements in other sections for connecting, terminating, and identifying wires and cables.

3.5 IDENTIFICATION

- A. Identify and color-code conductors and cables according to other sections.
- 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 other sections.

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 other sections.

3.8 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Perform tests and inspections.
 - 1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
 - 2. 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 for 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.
3. Infrared Scanning: After Substantial Completion, but before Final Acceptance, perform an infrared scan of each 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.
- 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 26 05 19

SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

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. Steel slotted support systems.
 - 2. Conduit and cable support devices.
 - 3. Support for conductors in vertical conduit.
 - 4. Structural steel for fabricated supports and restraints.
 - 5. Mounting, anchoring, and attachment components, including powder-actuated fasteners, mechanical expansion anchors, concrete inserts, clamps, through bolts, toggle bolts, and hanger rods.
 - 6. Fabricated metal equipment support assemblies.

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. Slotted support systems, hardware, and accessories.
 - b. Clamps.
 - c. Hangers.
 - d. Sockets.
 - e. Eye nuts.
 - f. Fasteners.
 - g. Anchors.
 - h. Saddles.
 - i. Brackets.
 - 2. Include rated capacities and furnished specialties and accessories.

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:

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1. Suspended ceiling components.
2. Ductwork, piping, fittings, and supports.
3. Structural members to which hangers and supports will be attached.
4. Size and location of initial access modules for acoustical tile.
5. Items penetrating finished ceiling, including the following:
 - a. Luminaires.
 - 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 AWS D1.1/D1.1M.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Preformed steel channels and angles with minimum 13/32-inch- (10-mm-) diameter holes at a maximum of 8 inches (200 mm) o.c. in at least one surface.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit; a part of Atkore International.
 - b. ERICO International Corporation.
 - c. GS Metals Corp.
 - d. Thomas & Betts Corporation; A Member of the ABB Group.
 - e. Wesanco, Inc.
 2. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
 3. Material for Channel, Fittings, and Accessories: Galvanized steel.
 4. Channel Width: Selected for applicable load criteria.
 5. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
- 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 non-armored 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) ITW Ramset/Red Head; Illinois Tool Works, Inc.
 - 3) MKT Fastening, LLC.
 - 4) 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) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti, Inc.
 - 4) ITW Ramset/Red Head; Illinois Tool Works, 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 F 3125/F 3125M, Grade A325 (Grade A325M).
 6. Toggle Bolts: All-steel springhead type.
 7. Hanger Rods: Threaded steel.

2.2 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 other section for "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with the following standards for application and installation requirements of hangers and supports, except where requirements on Drawings or in this Section are stricter:
1. NECA 1.

2. NECA 101
 3. NECA 105.
- B. Comply with requirements in other section for "Penetration Firestopping" for firestopping materials and installation for penetrations through fire-rated walls, ceilings, and assemblies.
- C. Comply with requirements for raceways and boxes specified in other section for "Raceways and Boxes for Electrical Systems."
- D. Maximum Support Spacing and Minimum Hanger Rod Size for Raceways: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- E. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted 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.

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, EMT, IMC and RMC 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 (90 kg).
- 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 (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
 6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts.
 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 other section for "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 (100 mm) 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 (20.7-MPa), 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in other sections for "Cast-in-Place Concrete."
- C. 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 (0.05 mm).
- B. Touchup: Comply with requirements in other sections 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 26 05 29

SECTION 26 05 33
RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

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 conduits and fittings.
 - 2. Metal wireways and auxiliary gutters.
 - 3. Surface raceways.
 - 4. Boxes, enclosures, and cabinets.

1.3 DEFINITIONS

- A. GRC: Galvanized rigid steel conduit.
- B. IMC: Intermediate metal conduit.

1.4 ACTION SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

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.

1.6 WARRANTY

- A. Warranty: Provide warranty per Section 010000 and manufacturers standard warranty from date of substantial completion. Manufacturer and Installer agree to repair or replace components that fail in materials or workmanship within specified warranty period.

PART 2 - PRODUCTS

2.1 METAL CONDUITS AND FITTINGS

- A. Metal Conduit:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit; a part of Atkore International.
 - b. FSR Inc.
 - c. NEC, Inc.
 - d. O-Z/Gedney; a brand of Emerson Industrial Automation.
2. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
3. GRC: Comply with ANSI C80.1 and UL 6.
4. IMC: Comply with ANSI C80.6 and UL 1242.
5. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit.
 - a. Comply with NEMA RN 1.
 - b. Coating Thickness: 0.040 inch (1 mm), minimum.
6. EMT: Comply with ANSI C80.3 and UL 797.
7. FMC: Comply with UL 1; zinc-coated steel.

B. Metal Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit; a part of Atkore International.
 - b. FSR Inc.
 - c. NEC, Inc.
 - d. O-Z/Gedney; a brand of Emerson Industrial Automation.
2. Comply with NEMA FB 1 and UL 514B.
3. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
4. Fittings, General: Listed and labeled for type of conduit, location, and use.
5. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 1203 and NFPA 70.
6. Fittings for EMT:
 - a. Material: Steel.
 - b. Type: compression.
7. 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.
8. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch (1 mm), with overlapping sleeves protecting threaded joints.

- C. Joint Compound for IMC, or 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 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.

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2. Hoffman; a brand of Pentair Equipment Protection.
 3. MonoSystems, Inc.
 4. Square D.
- B. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 unless otherwise indicated, and sized according to NFPA 70.
- 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.

2.3 BOXES, ENCLOSURES, AND CABINETS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Crouse-Hinds, an Eaton business.
 2. EGS/Appleton Electric.
 3. FSR Inc.
 4. Hoffman; a brand of Pentair Equipment Protection.
 5. Hubbell Incorporated.
 6. O-Z/Gedney; a brand of Emerson Industrial Automation.
- 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. Metal Floor Boxes:
1. Material: Cast metal.
 2. Type: Fully 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.
- F. Paddle Fan Outlet Boxes: Nonadjustable, designed for attachment of paddle fan weighing 70 lb (32 kg).
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.
- G. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- H. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.

- I. Box extensions used to accommodate new building finishes shall be of same material as recessed box.
- J. Device Box Dimensions: 4 inches square by 2-1/8 inches deep (100 mm square by 60 mm deep).
- K. Gangable boxes are allowed.
- L. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 with continuous-hinge cover with flush latch unless otherwise indicated.
 - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 - 2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.
- M. Cabinets:
 - 1. NEMA 250, Type 1 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.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
 - 1. Exposed Conduit: GRC.
 - 2. Concealed Conduit, Aboveground: GRC.
 - 3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 - 4. Boxes and Enclosures, Aboveground: NEMA 250, Type 4.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated:
 - 1. Exposed, Not Subject to Physical Damage: EMT.
 - 2. Exposed, Not Subject to Severe Physical Damage: EMT.
 - 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 commercial kitchens and damp or wet locations.
- C. Minimum Raceway Size: 3/4-inch (21-mm) trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate 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 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.

E. Install surface raceways only where indicated on Drawings.

F. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F (49 deg C).

3.2 INSTALLATION

A. Comply with requirements in other section for "Hangers and Supports for Electrical Systems" for hangers and supports.

B. 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.

C. Do not install raceways or electrical items on any "explosion-relief" walls or rotating equipment.

D. Do not fasten conduits onto the bottom side of a metal deck roof.

E. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

F. Complete raceway installation before starting conductor installation.

G. Arrange stub-ups so curved portions of bends are not visible above finished slab.

H. 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 (300 mm) of changes in direction.

I. Make bends in raceway using large-radius preformed ells. Field bending shall be according to NFPA 70 minimum radii requirements. Use only equipment specifically designed for material and size involved.

J. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

K. Support conduit within 12 inches (300 mm) of enclosures to which attached.

L. Raceways Embedded in Slabs:

1. Run conduit larger than 1-inch (27-mm) 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 (3-m) intervals.
2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
3. Arrange raceways to keep a minimum of 1 inch (25 mm) of concrete cover in all directions.

4. Do not embed threadless fittings in concrete unless specifically approved by Architect for each specific location.
- M. Stub-Ups to Above Recessed Ceilings:
1. Use EMT, IMC, or RMC for raceways.
 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
- N. 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.
- O. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.
- P. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- Q. 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 (35mm) trade size and insulated throat metal bushings on 1-1/2-inch (41-mm) trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- R. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- S. 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.
- T. Cut conduit perpendicular to the length. For conduits 2-inch (53-mm) trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- U. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- V. 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.
- W. 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. Conduit extending from interior to exterior of building.
 4. Where otherwise required by NFPA 70.

- X. Comply with manufacturer's written instructions for solvent welding RNC and fittings.
- Y. Expansion-Joint Fittings:
 - 1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F (17 deg C) and that has straight-run length that exceeds 25 feet (7.6 m). Install in each run of aboveground RMC conduit that is located where environmental temperature change may exceed 100 deg F (55 deg C) and that has straight-run length that exceeds 100 feet (30 m).
 - 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 (70 deg C) temperature change.
 - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F (86 deg C) temperature change.
 - c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F (70 deg C) temperature change.
 - d. Attics: 135 deg F (75 deg C) 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 (0.06 mm per meter of length of straight run per deg C) 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 (0.0115 mm per meter of length of straight run per deg C) 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.
- Z. 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.
- AA. 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 boxes and cover plate or supported equipment and box.
- BB. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
- CC. Locate boxes so that cover or plate will not span different building finishes.
- DD. 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.
- EE. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.
- FF. Set metal floor boxes level and 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 other section for "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 other section for "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

SECTION 260544

SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

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 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. Refer to other section for "Penetration Firestopping" for penetration firestopping installed in fire-resistance-rated walls, horizontal assemblies, and smoke barriers, with and without penetrating items.

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. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.
- B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch (0.6-mm) minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

C. Sleeves for Rectangular Openings:

1. Material: Galvanized sheet steel.
2. Minimum Metal Thickness:
 - a. For sleeve cross-section rectangle perimeter less than 50 inches (1270 mm) and with no side larger than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).
 - b. For sleeve cross-section rectangle perimeter 50 inches (1270 mm) or more and one or more sides larger than 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

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. CALPICO, Inc.
 - c. Metraflex Company (The).
 - d. 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: Carbon steel.
 4. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating, 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 one of the following:
 - a. HOLDRITE.

2.4 GROUT

- A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.
- B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
- C. Design Mix: 5000-psi (34.5-MPa), 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.
- B. 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 other section for "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 (6.4-mm) 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 (50 mm) 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 (25-mm) 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 (25-mm) 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 26 05 44

SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

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. Color and legend requirements for raceways, conductors, and warning labels and signs.
 - 2. Labels.
 - 3. Tags.
 - 4. Signs.
 - 5. Cable ties.
 - 6. Paint for identification.
 - 7. Fasteners for labels and signs.

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 electrical identification products.
- B. Identification Schedule: For each piece of electrical equipment and electrical system components to be an index of nomenclature for electrical equipment and system components used in identification signs and labels. Use same designations indicated on Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with ASME A13.1 and IEEE C2.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.
- E. Comply with NFPA 70E requirements for arc-flash warning labels.

- F. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.
- G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 COLOR AND LEGEND REQUIREMENTS

- A. Raceways and Cables Carrying Circuits at 600 V or Less:
 - 1. Black letters on an orange field.
 - 2. Legend: Indicate voltage and system or service type.
- B. Color-Coding for Phase- and Voltage-Level Identification, 600 V or Less: Use colors listed below for ungrounded feeder and branch-circuit conductors.
 - 1. Color shall be factory applied.
 - 2. Colors for 208/120-V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 - d. Neutral: White.
 - 3. Color for Equipment Grounds: Green.
 - 4. Colors for Isolated Grounds: Green with white stripe.
- C. Warning Label Colors:
 - 1. Identify system voltage with black letters on an orange background.
- D. Warning labels and signs shall include, but are not limited to, the following legends:
 - 1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
 - 2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES (915 MM)."
- E. Equipment Identification Labels:
 - 1. Black letters on a white field.

2.3 LABELS

- A. Vinyl Wraparound Labels: Preprinted, flexible labels laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing label ends.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

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- a. Brady Corporation.
 - b. LEM Products Inc.
 - c. Panduit Corp.
- B. Snap-around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeves, with diameters sized to suit diameters and that stay in place by gripping action.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. Panduit Corp.
 - c. Seton Identification Products.
- C. Self-Adhesive Wraparound Labels: Preprinted, 3-mil- (0.08-mm-) thick, vinyl flexible label with acrylic pressure-sensitive adhesive.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. LEM Products Inc.
 - c. Panduit Corp.
 2. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over the legend. Labels sized such that the clear shield overlaps the entire printed legend.
 3. Marker for Labels: Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.
- D. Self-Adhesive Labels: Vinyl, thermal, transfer-printed, 3-mil- (0.08-mm-) thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. LEM Products Inc.
 - c. Panduit Corp.
 2. Minimum Nominal Size:
 - a. 1-1/2 by 6 inches (37 by 150 mm) for raceway and conductors.
 - b. 3-1/2 by 5 inches (76 by 127 mm) for equipment.
 - c. As required by authorities having jurisdiction.

2.4 TAGS

- A. Write-on Tags:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. LEM Products, Inc.
 - c. Panduit Corporation.

2. Polyester Tags: 0.010 inch (0.25 mm) thick, with corrosion-resistant grommet and cable tie for attachment.
3. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.5 SIGNS

A. Baked-Enamel Signs:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. LEM Products, Inc.
 - c. Panduit Corporation.
2. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
3. 1/4-inch (6.4-mm) grommets in corners for mounting.
4. Nominal Size: 7 by 10 inches (180 by 250 mm).

2.6 CABLE TIES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Brady Corporation.
2. LEM Products, Inc.
3. Panduit Corporation.

B. General-Purpose Cable Ties: Fungus inert, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.

1. Minimum Width: 3/16 inch (5 mm).
2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 12,000 psi (82.7 MPa).
3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
4. Color: Black, except where used for color-coding.

C. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.

1. Minimum Width: 3/16 inch (5 mm).
2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 12,000 psi (82.7 MPa).
3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
4. Color: Black.

D. Plenum-Rated Cable Ties: Self-extinguishing, UV stabilized, one piece, and self-locking.

1. Minimum Width: 3/16 inch (5 mm).
2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 7000 psi (48.2 MPa).
3. UL 94 Flame Rating: 94V-0.
4. Temperature Range: Minus 50 to plus 284 deg F (Minus 46 to plus 140 deg C).

5. Color: Black.

2.7 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Retain paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

3.2 INSTALLATION

- A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.
- B. Install identifying devices before installing acoustical ceilings and similar concealment.
- C. Verify identity of each item before installing identification products.
- D. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.
- E. Apply identification devices to surfaces that require finish after completing finish work.
- F. Install signs with approved legend to facilitate proper identification, operation, and maintenance of electrical systems and connected items.
- G. System Identification for Raceways and Cables under 600 V: Identification shall completely encircle cable or conduit. Place identification of two-color markings in contact, side by side.
 1. Secure tight to surface of conductor, cable, or raceway.
- H. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
- I. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- (10-mm-) high letters for emergency instructions at equipment used for power transfer.

- J. Elevated Components: Increase sizes of labels, signs, and letters to those appropriate for viewing from the floor.
- K. Vinyl Wraparound Labels:
 - 1. Secure tight to surface of raceway or cable at a location with high visibility and accessibility.
 - 2. Attach labels that are not self-adhesive type with clear vinyl tape, with adhesive appropriate to the location and substrate.
- L. Snap-around Labels: Secure tight to surface at a location with high visibility and accessibility.
- M. Self-Adhesive Wraparound Labels: Secure tight to surface at a location with high visibility and accessibility.
- N. Self-Adhesive Labels:
 - 1. On each item, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
 - 2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high.
- O. Self-Adhesive Vinyl Tape: Secure tight to surface at a location with high visibility and accessibility.
- P. Floor Marking Tape: Apply stripes to finished surfaces following manufacturer's written instructions.
- Q. Write-on Tags:
 - 1. Place in a location with high visibility and accessibility.
 - 2. Secure using general-purpose cable ties.
- R. Baked-Enamel Signs:
 - 1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
 - 2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on minimum 1-1/2-inch- (38-mm-) high sign; where two lines of text are required, use signs minimum 2 inches (50 mm) high.
- S. Cable Ties: General purpose, for attaching tags, except as listed below:
 - 1. Outdoors: UV-stabilized nylon.
 - 2. In Spaces Handling Environmental Air: Plenum rated.

3.3 IDENTIFICATION SCHEDULE

- A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.

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SUNY Library Building

- B. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.
- C. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Branch Circuits, More Than 30 A and 120 V to Ground: Identify with self-adhesive raceway labels.
 - 1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
- D. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, use write-on tags with the conductor or cable designation, origin, and destination.
- E. Control-Circuit Conductor Termination Identification: For identification at terminations, provide heat-shrink preprinted tubes with the conductor designation.
- F. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source.
- G. Auxiliary Electrical Systems Conductor Identification: Marker tape that is uniform and consistent with system used by manufacturer for factory-installed connections.
 - 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
- H. Workspace Indication: Apply floor marking tape to finished surfaces. Show working clearances in the direction of access to live parts. Workspace shall comply with NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.
- I. Instructional Signs: Self-adhesive labels, including the color code for grounded and ungrounded conductors.
- J. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Baked-enamel warning signs.
 - 1. Apply to exterior of door, cover, or other access.
 - 2. For equipment with multiple power or control sources, apply to door or cover of equipment, including, but not limited to, the following:
 - a. Power-transfer switches.
 - b. Controls with external control power connections.
- K. Arc Flash Warning Labeling: Self-adhesive labels.
- L. Operating Instruction Signs: Baked-enamel warning signs.
- M. Emergency Operating Instruction Signs: Baked-enamel warning signs with white legend on a red background with minimum 3/8-inch- (10-mm-) high letters for emergency instructions at equipment used for power transfer.
- N. Equipment Identification Labels:
 - 1. Indoor Equipment: Self-adhesive label.
 - 2. Outdoor Equipment: Laminated acrylic or melamine sign.
 - 3. Label all electrical equipment.

END OF SECTION 26 05 53

SECTION 26 27 26
WIRING DEVICES

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. Standard Grade Receptacles, 125V, 20A
 - 2. GFCI Receptacles, 125 V, 20 A.
 - 3. Thermal Motor Rated Switches, 120/277V, 20A

1.3 DEFINITIONS

- A. AFCI: Arc-fault circuit interrupter.
- B. EMI: Electromagnetic interference.
- C. GFCI: Ground-fault circuit interrupter.
- D. Pigtail: Short lead used to connect a device to a branch-circuit conductor.

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.

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.

1.7 WARRANTY

- A. Warranty: Provide warranty per Section 010000 and manufacturers standard warranty from date of substantial completion. Manufacturer and Installer agree to repair or replace components that fail in materials or workmanship within specified warranty period.

PART 2 - PRODUCTS

2.1 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 use.
- B. Comply with NFPA 70.
- C. RoHS compliant.

- D. Comply with NEMA WD 1.
- E. 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 requirements in this Section.
- F. Devices for Owner-Furnished Equipment:
 - 1. Receptacles: Match plug configurations.
 - 2. Cord and Plug Sets: Match equipment requirements.
- G. 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 Essential Electrical System: Red.
- H. Wall Plate Color: Stainless steel for brick and terracotta locations. Blank plates for covering abandoned devices in existing brick walls.
- I. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.
- J. All automatically controlled receptacles to have a special symbol and the word "controlled" marked on receptacles to indicate that they will be controlled by automatic means.

2.2 STANDARD-GRADE RECEPTACLES, 125 V, 20 A

- A. Tamper- and Weather-Resistant Duplex 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.
 - d. Pass & Seymour/Legrand (Pass & Seymour).
 - 2. Description: Two pole, three wire, and self-grounding. Integral shutters that operate only when a plug is inserted in the receptacle. Square face.
 - 3. For use in wet location, provide weatherproof receptacle enclosure.
 - 4. Configuration: NEMA WD 6, Configuration 5-20R.
 - 5. Standards: Comply with UL 498.
 - 6. Marking: Listed and labeled as complying with NFPA 70, "Tamper-Resistant Receptacles" and "Receptacles in Damp or Wet Locations" articles.

2.3 GFCI RECEPTACLES, 125 V, 20 A

- A. Tamper- and Weather-Resistant, GFCI Duplex 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.
 - d. Pass & Seymour/Legrand (Pass & Seymour).

2. Description: Integral GFCI with "Test" and "Reset" buttons and LED indicator light. Two pole, three wire, and self-grounding. Integral shutters that operate only when a plug is inserted in the receptacle. Square face.
3. For use in wet location, provide weatherproof receptacle enclosure.
4. Configuration: NEMA WD 6, Configuration 5-20R.
5. Type: Feed through.
6. Standards: Comply with UL 498 and UL 943 Class A.
7. Marking: Listed and labeled as complying with NFPA 70, "Tamper-Resistant Receptacles" and "Receptacles in Damp or Wet Locations" articles.

2.4 THERMAL MOTOR RATED SWITCHES, 120/277 V, 20 A

A. Single-Pole Switches, 120/277 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.
 - d. Pass & Seymour/Legrand (Pass & Seymour).
2. Description: Motor Rated Toggle Switch Disconnect shall consist of a toggle operated one or two or three pole switch, as per electrical drawings. Contacts shall be double break silver alloy, visible from both sides of the switch, and shall have a direct linkage to the operator for positive break. Provide flush mounted units in finished areas and surface mounted units in unfinished areas. Starts shall be rated for the motor horsepower required. Provide handle guard with locking provisions.
3. For use in wet location, provide weatherproof receptacle enclosure.
4. Standards: Comply with UL 20 and FS W-S-896.

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 comply with NFPA 70, Article 300, without pigtails.

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 (152 mm) 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
10. Install floor box assembly in a "flush" manner such that no component shall extend higher than floor finish materials.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

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.

3.2 GFCI RECEPTACLES

- A. Install non-feed-through GFCI receptacles where protection of downstream receptacles is not required.

3.3 IDENTIFICATION

- A. Comply with requirement in other section for "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. Test Instruments: Use instruments that comply with UL 1436.
- B. Test Instrument for Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.
- C. Perform the following tests and inspections:
1. Test Instruments: Use instruments that comply with UL 1436.

2. Test Instrument for Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

D. Tests for 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.

E. Wiring device will be considered defective if it does not pass tests and inspections.

F. Prepare test and inspection reports.

END OF SECTION

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SECTION 26 28 13
FUSES

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. Cartridge fuses rated 600 V ac and less for use in the following:
 - a. Control circuits.
 - b. Enclosed controllers and switches.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for spare-fuse cabinets. Include the following for each fuse type indicated:
1. Ambient Temperature Adjustment Information: If ratings of fuses have been adjusted to accommodate ambient temperatures, provide list of fuses with adjusted ratings.
 - a. For each fuse having adjusted ratings, include location of fuse, original fuse rating, local ambient temperature, and adjusted fuse rating.
 - b. Provide manufacturer's technical data on which ambient temperature adjustment calculations are based.
 2. Dimensions and manufacturer's technical data on features, performance, electrical characteristics, and ratings.
 3. Current-limitation curves for fuses with current-limiting characteristics.
 4. Time-current coordination curves (average melt) and current-limitation curves (instantaneous peak let-through current) for each type and rating of fuse. Submit in electronic format suitable for use in coordination software.
 5. Coordination charts and tables and related data.
 6. Fuse sizes for elevator feeders and elevator disconnect switches.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For fuses to include in emergency, operation, and maintenance manuals. In addition to items specified in other sections for "Closeout Procedures," and "Operation and Maintenance Data," include the following:
1. Ambient temperature adjustment information.
 2. Current-limitation curves for fuses with current-limiting characteristics.
 3. Time-current coordination curves (average melt) and current-limitation curves (instantaneous peak let-through current) for each type and rating of fuse used on the Project. Submit in electronic format suitable for use in coordination software.
 4. Coordination charts and tables and related data.

1.5 FIELD CONDITIONS

- A. Where ambient temperature to which fuses are directly exposed is less than 40 deg F (5 deg C) or more than 100 deg F (38 deg C), apply manufacturer's ambient temperature adjustment factors to fuse ratings.

1.6 WARRANTY

- A. Warranty: Provide warranty per Section 010000 and manufacturers standard warranty from date of substantial completion. Manufacturer and Installer agree to repair or replace components that fail in materials or workmanship within specified warranty period.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Bussmann, an Eaton business.
 2. Edison; a brand of Bussmann by Eaton.
 3. Littelfuse, Inc.
 4. Mersen USA.
- B. Source Limitations: Obtain fuses, for use within a specific product or circuit, from single source from single manufacturer.

2.2 CARTRIDGE FUSES

- A. Characteristics: NEMA FU 1, current-limiting, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.
1. Type RK-1: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
 2. Type RK-5: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
 3. Type CC: 600-V, zero- to 30-A rating, 200 kAIC, fast acting.
 4. Type CD: 600-V, 31- to 60-A rating, 200 kAIC, fast acting.
 5. Type J: 600-V, zero- to 600-A rating, 200 kAIC, time delay.
 6. Type L: 600-V, 601- to 6000-A rating, 200 kAIC, time delay.
 7. Type T: 250-V, zero- to 1200-A or 600-V, zero- to 800-A rating, 200 kAIC, time delay.
- 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 NEMA FU 1 for cartridge fuses.
- D. Comply with NFPA 70.
- E. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine fuses before installation. Reject fuses that are moisture damaged or physically damaged.
- B. Examine holders to receive fuses for compliance with installation tolerances and other conditions affecting performance, such as rejection features.
- C. Examine utilization equipment nameplates and installation instructions. Install fuses of sizes and with characteristics appropriate for each piece of equipment.
- D. Evaluate ambient temperatures to determine if fuse rating adjustment factors must be applied to fuse ratings.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FUSE APPLICATIONS

- A. Cartridge Fuses:
 - 1. Motor Branch Circuits: Class RK1, time delay.
 - 2. Other Branch Circuits: Class RK1, time delay.

3.3 INSTALLATION

- A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.

3.4 IDENTIFICATION

- A. Install labels complying with requirements for identification specified in other section for "Identification for Electrical Systems" and indicating fuse replacement information inside of door of each fused switch and adjacent to each fuse block, socket, and holder.

END OF SECTION